

## Conference Paper

# Land/Forest Fire in the Perspective of Catastrophic Criminology

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## Abstract

In 2015, Indonesia had to face the land and forest fires once again. It comes as a concern that the land and forest fires happens nearly every year. Various policies have been implemented to prevent fires recurrence and seemed not to be effective at all. The question that comes along is why the fire is always happening? Some research have taken place to answer the question. Including a research which the authors have done in 2016 with the support from Thailand Research Fund. With Riau Province as the case study, the authors concluded the factors which caused the land and forest fires could be divided into structural, cultural, and natural factor. Structural factor is related with the lack of policy from central government and local government in the natural resources management. Decentralization post-reformation is considered contributing in the complexity of this issue, although it does not mean that central government is fully innocent. Historically, a few issues in natural resources management could not be separated with the state policies in the New Order regime. The land and forest ownership for pulp and paper industry also for palm oil plantation is considered as one of the most troubled policies. Cultural factor is related to the daily practice within the communities, where they use the hereditary conventional technology for land clearing that will be used for agriculture and plantation purpose by using fire. However, one thing to be cleared, local communities have discernment in land clearing using fire management from generation to generation. The issues only occur when conventional technology is used by certain parties for the sake of large capital owners in pulp and paper industry also palm oil plantation. Meanwhile the natural factor has more to do with the land condition in Riau province that has peat characteristics. The 'el nino' phenomenon makes peatland even more flammable. One thing that will differentiate this research with some others have done is the perspective used in the analysis. The development of contemporary criminology thoughts sees environmental degradation, including land/forest fire, as a catastrophic phenomenon caused by chaotic factors. This factor spreads in social practices at the micro level to the macro-level policies.

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## 1. Preface

Crime, a phenomenon that is not purely conventional. Crime is not only about robbery, but also stealing committed by the state's apparatus, in the form of corruption. Similarly crime is not only violence against humans, but also violence against nature, in a form of environmental crime (environmental crime). However, the explanation about a crime is often based on an etiological analysis which gives more focus on the causes of the doers themselves (especially psychological) or factors outside himself, especially sociological factors. Various theories in modern criminology, especially the positivism approach, have identified various factors that lead to crime, such as differential association (Edwin Sutherland), social structure and anomie (Robert Merton), social disorganization (Burgess, Shaw and McKay), lower class culture (Walter Miller), or other factors. In addition, an explanation of the crime was also relatively heavily influenced by the interactionist approach, which sees crime as a social process of defining the society and the state. Within this perspective, the crime is not an individual quality but a result of stigma or labeling by the society (Edwin Lemert), and the implementation of economic and political power in the criminalization and law enforcement (Richard Quinney).

However, understanding the crime could not be deemed adequate if it is only based on etiological explanation or seeing crime as a social definition only. The second weakness of this perspective is monolithic, too broad and flat. The social reality of crime is basically much more complex, so it does not fit in to be described as monolithic. As an illustration, a person commits a theft crime in a house (burglary) could not only be explained from the etiological aspects, such as economic motive for poverty perpetrators, without understanding the complexity of the event. Theft in a housing area may occur not only because there are doers who have economic motives, but also because of the situations that make crime act possible to happen, such as when the house is empty and dark while the homeowners leave for a vacation, an occurrence of storm and the complete black out in the area, or perhaps because of the security staff who should stand guard at the night feels unwell.

The need to understand the complexity of a crime requires a change of perspective in criminology towards more integrated perspective. The improvement of postmodern perspective theories provide a more inclusive view, although it could be referred that postmodernism itself is a new framing that may limit the description of the crime itself. However, in terms of epistemology, postmodernism is an opportunity to explain something specific through a theoretical framework that is more diverse. In contrast

with the characteristics of the modern theories that try to explain something more complex through the theoretical monolithic framework. One of the perspective that encourages efforts to describe a crime as something complex is catastrophe criminology. This paper aims to provide further explanation of the catastrophe criminology, in the context of the problems which is faced by Indonesia almost all the time, even since the reform era, land/forest fire.

## 2. The Incident of Land/Forest Fire in Indonesia

Land/forest fire in Indonesia, particularly in Riau province often occurs every year. The incident of land/forest fire which happened in 2015 is the largest since 1997 and had a relatively large impact on the socio-economic conditions, public health, even international relationships. The haze duration was longer than any of previous years, lasted after almost two months long, in some cities along Sumatra island, especially in Pekanbaru city, Riau province got one of the most noticeable impact on land/forest fire in 2015. The haze had resulted respiratory disorders, especially among children. Low visibility, had hampered the air traffic to Pekanbaru city. Notes regarding the deaths caused by haze from land/forest fire has even caused a debate (the guardian, September 21<sup>st</sup>, 2016). As the worst since the 1997 fire incident, which burned about 261,000 hectares of peatlands and forests, haze from fires in 2015 and was estimated to have caused the death of up to 100,000 people in Indonesia, Malaysia and Singapore, according to estimation research conducted by researchers from Harvard and Columbia University. Review conducted by The Associated Press by experts in the field of air pollution explains the methodology and conclusions of the study is quite groundless, although the estimated 91.600 deaths in Indonesia, 6,500 deaths in Malaysia, and 2,000 deaths in Singapore rated uncertain for their modeling research was based on assumptions. The Government of Indonesia, Malaysia, and Singapore denied these results. Formally the deaths in Indonesia only 24 souls including the deaths in fire-fighting efforts.

Various studies have found a variety of factors behind the occurrence of land/forest fire in Indonesia, particularly Sumatra. A number of factors were identified to be the direct cause of the spread such as El Nino heat wave factor, the condition of flammable peatland, negligence, violations committed by the concessionaire of land, up to a factor of corruption and the abuse of authority of local apparatus. One factor that is often cited as a cause of forest fires is the habit of local people in land clearing. The cost is cheaper as the main reason locals use by burning the land in clearing the area for plantations or

agriculture. But the habits of the local people could not be considered as a major cause to be noted this has become a part of their social life for generations. They also have special techniques in conducting combustion, thus prevent the fire from spreading to the other land. The existence of local residents' habits that have existed for a long time, since 2009 are protected under the Environment Act number 32 of 2009.

At the macro level, occurrence and remaining land/forest fire problems could not be separated from the context of the development of global capitalism. Exploitation of timber from Indonesian forests is associated with the high demand for economical products made from wood. In the EIA report in 2014 noted that since the end of the 1990s, the export of illegal timber from Indonesia that came from Indonesia, particularly Sumatra, Kalimantan and Papua were more prevalent because of the large demand from the business based on wooden in China, such as flooring products home from wood. Investments in plantations in Indonesia also involve foreign investors, although the company is managed by Indonesian.

President Joko Widodo through Nawacita political program, basically confirms the commitment to environmental issues. Indonesia's development program in Nawacita has a charge of sustainable development goals/SDGs [2]. At the mention of the forestry section, there is an action plan that could be referred to as a green program. The action plan, among others; combating illegal logging; evaluation and management of resource utilization; resolving conflicts and overlapping forest permits; preservation and protection of 20 million hectares of forest, including flora and fauna in danger of extinction; rehabilitation of 100 million hectares of non-forested land, degraded land and unproductive. While on the subject of spatial and sustainable environment, Nawacita stressed the needs to exploit natural resources in a sustainable (environmentally sound). Joko Widodo administration's commitment is of course providing a great opportunity for the improvement of the forestry sector, especially to prevent further environmental damage from burning forest. Ecology occupies the main position for SDGs a balanced mandate the implementation of the development agenda that not only gives priority to socio-economic progress, but also sustainability ecology and environment. Which must be done because of climate change, destruction of forests, and the unlimited exploitation of natural resources in a market economy would ultimately destroy all creatures and the earth's carrying capacity. Therefore, economic growth should not be blind to the cost of environmental damage [3].

Hence almost occurs every year in Indonesia, especially in the dry season, the Indonesian government is under pressure from other countries because of the haze caused by land/forest fire pollute the air in these countries such as Malaysia, Singapore,

and the southern part of Thailand. In 2014 Indonesia finally ratified the deal of transboundary haze which affirmed the commitment of Indonesia in the preventive act. But then fires occurred again in 2015, and even became one of the largest and with more complex impact. Surely this creates a question. What actually causes the land/forest fire becoming a difficult problem to handle, systemic and occurs continuously. Including the question in the context of criminology because of land/forest fire has caused great disadvantages and the indication of the involvement of many other violations, whether committed by the company, the state's apparatus, and certain individuals from the public. Corruption assessed a major role in maintaining fixed occurrence of this problem from year to year. Especially relating with the corruption in natural resource management policies, such as the granting of licenses or mining concessions, timber, to palm oil plantation concessions.

As said earlier, the purpose of this paper aims to explain about land/forest fire that occurs in Indonesia in recent years in a criminological perspective. Particularly the dynamic relationship between the various factors that could be considered as the background of the occurrence of catastrophic events, namely the physical environmental conditions, social practices, business practices, government policy, law enforcement, and international pressure. In this case it is not intended to provide in-depth description of the objective reality. Data or information is used as part of a reflection criminological correspondence. However, it should be mentioned that the data or information presented in this paper is a part of a research conducted by using the method of field research, with a case study in Riau province. In addition of doing a number of interviews with sources originating from the forestry department, department of estates, the regional parliament (province), local police and local NGOs (in this case from Wahana Lingkungan Hidup/The Indonesian Forum for Environment/WALHI), interviews were also conducted with sources at the national level who spoke for the Ministry of Environment and Forestry, ministry of agriculture, police republic of Indonesia, corruption eradication commission, and non-government organizations at the national level (The Indonesian Forum for Environment and Greenpeace Indonesia). In addition, data/information used was also derived from the study of literature which was made with regard to the issue of land/forest fire. Whether in the form of research reports, books, to the news on printed media.

### 3. Catastrophic Criminology: An Epistemological Approach

As previously described in the introduction, criminology as a social science discipline has a number of perspectives. However, the tendencies of those perspective are monolithic, it relatively could not see a crime as a complex phenomenon. Catastrophe theory model in this case provides a space for the broader observation. The basic idea in this theoretical model is to describe the crime as an event (events) with factors of complex backgrounds. In addition, other things offered by this model is to understand the discontinuity. In positivism approach which tends to give the model a recipe, a crime is a phenomenon that could be predicted. As the analysis of Concentric Zone Theory (Burgess) or High Delinquency Area (Shaw and McKay), crime is a sociological phenomenon that is motivated by social disorganization occurs in crowded urban areas and heterogeneous, a place that becomes a lower class living area. In the theoretical catastrophe model, an explanation of the crime is a probability, not a certainty. In the area of probability an explanation of these crimes, there will be other uncertainties also known as a discontinuity. Before explaining more about the construction of thinking criminology catastrophe, has to be clarified in advance how to see crime as an event.

Table 1 below contains the general conclusions of three main perspectives in criminology. Postmodernism, separated from the assumption that this perspective is a form of another ‘explanation of constraining’, but it gives room for more open dialogue. This could not be separated with the background of the rise of postmodernism itself as a form of criticism against modernity position that has pretensions to emphasize the certainty of an answer about something and the answer is universal.

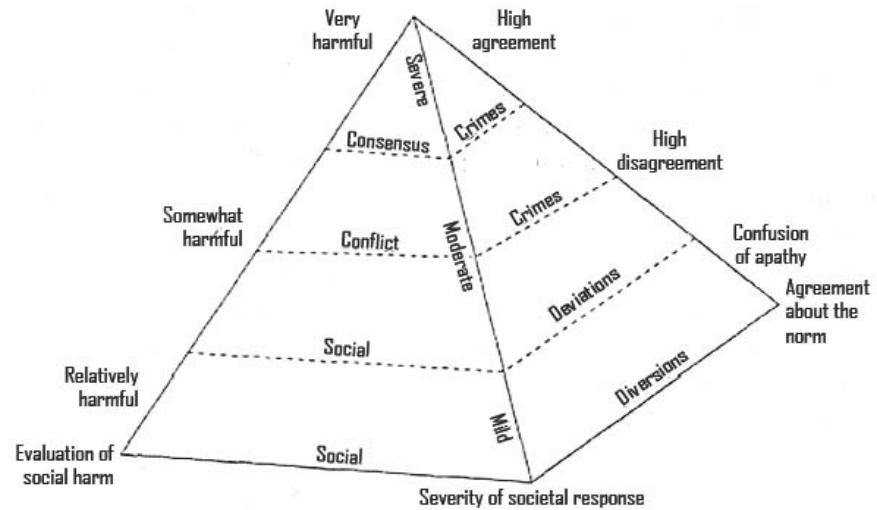
TABLE 1: Perspectives in Criminology.

Perspective	Crime Meaning
Positivism/Consensus	<ul style="list-style-type: none"> <li>- The crime meaning is more centered on etiological explanation which sees a crime as a phenomenon caused by factors that have been confirmed.</li> <li>- Etiological factors spread in both psychological and sociological dimensions.</li> </ul>
Interactionist/Conflict	<ul style="list-style-type: none"> <li>- Crime is not seen as an individual quality, as someone who has a bad nature.</li> <li>- The crime meaning is seen as a result of the process of defining being done by the community (through label/stigma) and state (through criminalization)</li> </ul>
Postmodern	<ul style="list-style-type: none"> <li>- Crime is a complex phenomenon</li> <li>- Crime is local</li> <li>- The crime meaning is seen as an event that has been overshadowed by factors or complex conditions.</li> <li>- Some of the factors or conditions could not be defined.</li> </ul>

One of the triggers in the change of view about the crime in the direction to this event is Marcus Felson. According to him, the high level of crime is a hallmark of social structure and a culture of the latest modernity. To understand the high level of this crime, we need to understand how our routine activities setting up opportunities for crime to happen. Furthermore Felson explained, *criminology emphasizes the ways in which criminal opportunities are structured by, and rise out of, the recurring transactions and routines that characterize daily life. The chemistry of crime could be reduced to the interaction of three vital elements – a likely offender, a suitable target, and the absence of a capable guardian against the offense* [8]. Arguments that should be highlighted from the Felson's view that said a crime has been structured in routine or daily life. Although on the other part, he explained that the opportunity that has been structured lies in the interaction between the factors that motivated offenders to undergo a crime, the right target, and weaknesses aspects of guard that will be retaining the crime. This of course creates a question, why the crime scene is limited only in the interaction of three factors alone. But apart from that, the most important thing is how Felson has prompted changes in monolithic criminology's view.

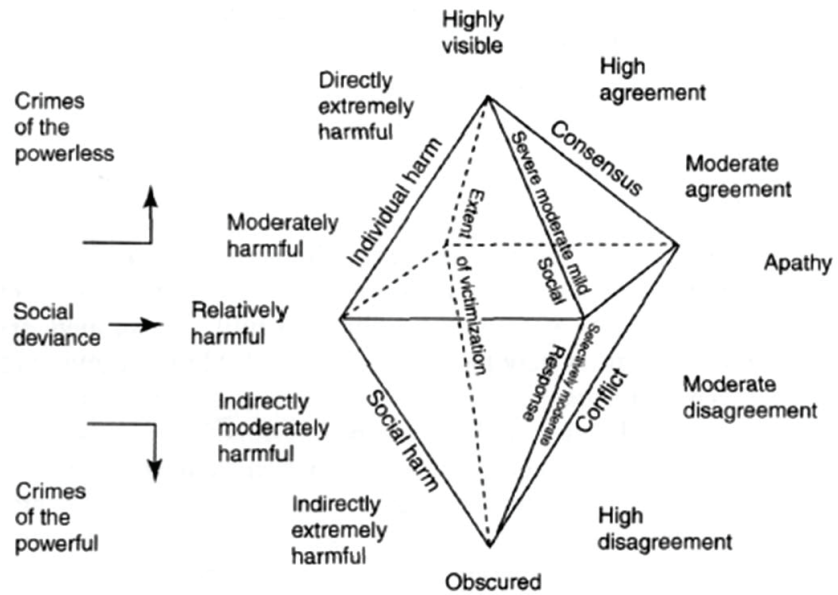
Besides Marcus Felson, other criminologist driving these changes is John Hagan (1977) through the pyramid model of crime. In his view, a crime is a phenomenon present in the spectrum of interaction between the level of loss (the evaluation of social harm), the level of social reaction to crime (severity of social response), and the level of agreement to the norm. This model was then developed further in the form of Crime Prism by Lanier and Henry (1998). In this prism models, both explain that the crime is a phenomenon present in the spectrum of interaction between what was previously described by Hagan, coupled with the expanded coverage of loss (the extent of victimization), not only individual but also social harm. Through this addition, Lanier and Henry could identify what is then called the visibility of crimes which would then connect with anyone who is later identified as the perpetrators. Both models could be illustrated by the figure below.

Theoretical catastrophe model, has the same epistemological approach to the pyramid and prism of crime in terms of seeing crime as a complex event, no longer monolithic. But what makes catastrophe model different is the ability to identify possible other factors besides those that have been identified. Another possibility is basically unpredictable, caused by factors that could not be identified. In the terminology of catastrophe theory, another possibility which could not be predicted is called a discontinuity, and other factors which could not be identified previously would be referred



Source: Hagan (1977:14).

Picture 1: Crime Pyramid.



Source: Lanier and Henry (1998:28).

Picture 2: Crime Prism

as attractors. This discontinuity is a catastrophic condition itself, which is a form of sensitivity system to the changes caused by attractors.

Catastrophe theory was first introduced by Rene Thom in 1975. According to him, the existence (reality) is more like a patchwork quilt, and various individual spaces interwoven with one another. An understanding of multidimensional reality and discontinuous. Each room is organized by the assumptions (statement of the probability) that is different about the nature of reality [14]. Crime in this perspective could not be understood only in the context of causation as defined by theory or modeling.



When associated with the development perspective in criminology, catastrophe theory perspective, as chaos theory marks postmodernism which sees crime as a very complex phenomenon. Crime is not just a phenomenon that has caused psychological or sociological, as well as crime is not only a social definition, but crime is also an event that may occur due to minor factors that are not defined by theory. As critical thinking in criminology actually is not paying full attention to what is called a crime based on subjective interpretation, but instead describe the crime as an actual event. An understanding of what actually related in this case is the system of oppression, structural injustice, or inequality.

How catastrophe theory in its relation to criminology could be summarized as follows. First, crime is seen as an event. Crime has been structured in routine or daily life. This means that crime could not be simply explained in causality relation. Second, therefore crime is a complex phenomenon. Could be affected by certain factors that may not be acknowledged previously. Third, the factor that determines precisely the attractor's factor, which is not large or just a small factor.

#### 4. Stringing Up Land/Forest Fire in the Perspective of Catastrophic Criminology

This section will explain further on how land/forest fire being seen in the perspective of catastrophe criminology. Following the development problems of land/forest fire in Indonesia, it seems there is a great difficulty in determining whether the fire could be considered as a crime and the perpetrator is an individual, group or a bad corporation. Maybe this is also the cause why proceedings against arsonists is not as numerous as conventional crimes such as theft and robbery. Whereas land/forest fire creates damage and losses that are not small. Rob White seemed predicting this. He explained; *the level of harm that is deemed to be acceptable or unacceptable always involves some combination of scientific knowledge and values-based judgement. Environmental issues are interpreted through the lens of philosophy, even though the material basis for understanding lies in direct experience and scientific experiment* (White, 2008: 5).

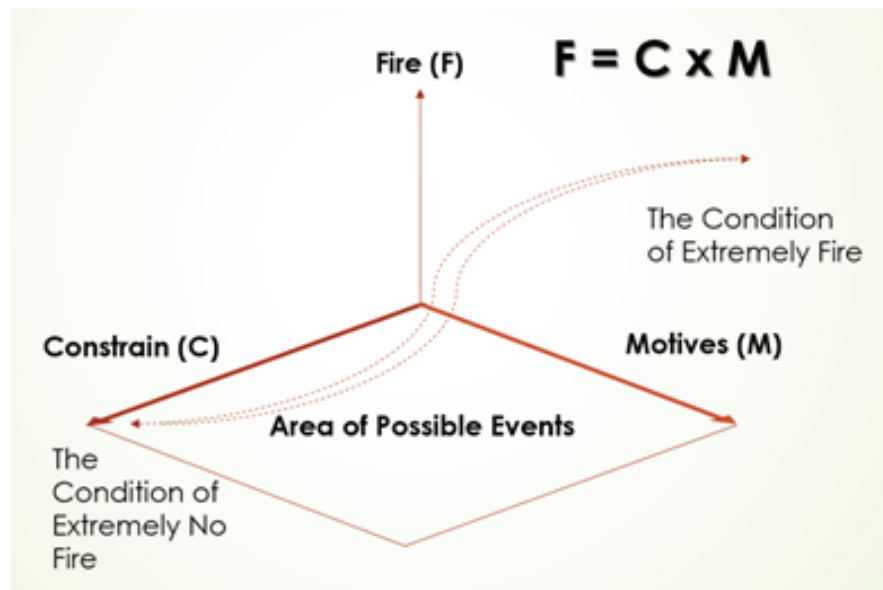
Through catastrophe criminology, land and forest fires that occurred in Indonesia, where the fire incident in 2015 is the largest since 1997, could be seen as a form of major disasters caused by complex factors and partly caused by factors that fall into the category of 'possible'. This paper does not specifically aim to confirm how the land/forest fire could be considered as environmental crimes, as described by Rob White at the top. According to the Environment Investigation Agency (2008),

environmental crime could be generally defined as an unlawful act which harm the environment directly. In the perspective of criminology, land/forest fire in Indonesia is a crime against the environment thus causing harm to the environment in the form of forest destruction. When broken down further, the fire could not be separated from other environmental crimes, namely the destruction of peatland ecosystems. The expansion of palm oil and acacia plantations for pulp and paper, followed by draining peatland through cannalization, has led peatland to be highly susceptible to fire. Besides, from the various interviews conducted with environmental activists, particularly The Indonesian Forum for Environment (WALHI), as well as interviews conducted with the Directorate General of Enforcement of Environmental Law, the Ministry of Environment and Forestry, it is known that the land/forest fire also involves an organized group that paid by certain parties to burn the area as the easiest way to do land clearing and the illegal annexation. In addition, WALHI also found indications of corruption in the management of natural resources, in this case how the concession for logging, planting acacia, and the estate is one of local government's authority to be vulnerable to abuse in the form of corruption.

The position of this article is intended to explain how the crime scene of land/forest fire itself as a complex event. Based on interviews with Sonny Keraf 11 April 2016, the former Minister of Environment and Forestry of Indonesia (1999-2001), there are several causes of land/forest fire in Indonesia. First, global warming, in which a high degree of dryness naturally lead to land/forest fire. Second, the characteristics of peatland that is highly flammable in dry conditions and very difficult to control when it burns. Thirdly, the existence of some violations committed by companies of palm oil plantations. Fourth, the weak law enforcement, not only against the perpetrators of the of land/forest fire, but also against all the destruction to the environment.

The basic idea of the model in explaining the fire catastrophe criminology land/forests could be illustrated by picture 3 below. In the following picture, the fire event (F) is a function of Constrain (C) and Motives (M). As is the constraint in this regard are the indicators contained in crime control. Not only in terms of law enforcement, but also including government policies in general. The direction of the arrow shaft (axis) 'C' and 'M' signifies a high current condition. For 'C' means that the higher the better crime control. As for the 'M' means the stronger the higher the motive to commit a crime. Area formed by the 'C' and 'M' functions is the area of the possibility of fire events. Two of the possibilities are; (1) when the 'C' is low, while the 'M' is high, then the fire will probably take place at a very high level. Preferably, (2) when the 'C' is high,

while the 'M' is low, then the fire is very unlikely to happen. This logic could be called as a 'symmetric' logic.



Picture 3: The Basic Idea.

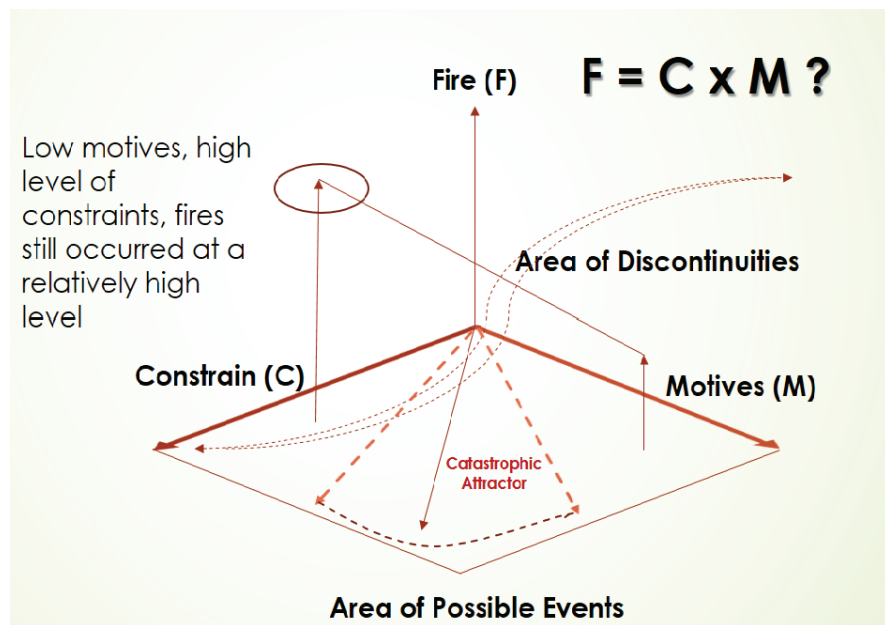
According to the interviews conducted with various parties, consists of police (national and local police), the Ministry of Environment and Forestry, ministry of agriculture, civil society organizations (WALHI and Greenpeace Indonesia, including at the local level), local governments (especially in the province of Riau), up the corruption eradication commission, could identify some factors in this model which then classified as 'C' and 'M'. Table 2 below unravels these factors.

Table 2 could be used to explain the possibility of the occurrence of fire. In addition in the context of levels (high-low), an understanding of the function of each factors 'C' and 'M' could also be seen in the context of the accumulation of factors. In the area of 'the probable events', high-low fire event would then be explained by the symmetrical 'logic' illustrated through picture 3. However, which then becomes a problem is a function  $[F = C \times M]$  is not represented in the 'symmetrical' logic, Discontinuities occur that could be illustrated as picture 4 below. If the 'C' factor is high, and the 'M' factor is low, fire event should be very low. However, in reality, the fire just keeps going in the intensity that is relatively high at the time when the attention is given by the central government and local governments (C) high, and a number of 'M' factor' is reduced, such as reductions in illegal logging, reduction of land clearing by burning, and desistance (cessation, although a while) the abuse of authority committed by local government apparatus. Means, symmetrical logic is not working (discontinuity happens).

TABLE 2: 'C' and 'M' Factor.

Constrain	Motives
Weak law enforcement of the principle of 'Strict Liability' contained in the Law on Environment	Global investments in plantations, mining and paper industries
Weak law enforcement, both by the criminal justice system, as well as those carried out by the Ministry of Environment and Forestry	Extensive areas of development and mining concessions
Weaknesses in monitoring and evaluating the concession's license by local governments	Legal and illegal logging
The absence of 'green technology	Burning as an easy way in the effort of land clearing for plantations
The lack of 'one map' policy which ensures there is no overlapping in licensing and supervision	The authority abuse being done by the local government apparatus
Lack of coordination that occurs between the central government and local governments	Exchange of economic/political between politicians and businesses in regards to forest management, plantation, and mining

Source: compiled from various interviews



Picture 4: Discontinuity.

Thus, discontinuity is a condition that could not be explained by the 'C' and 'M' functions. Catastrophe Theory explains, that the discontinuity conditions caused by what is called the 'attractor'. For example, after the occurrence of a major fire in 2015 and the government (central and local) as well as law enforcement has made a number of improvements in the 'C'. Even within the Forest Fire Coordination Meeting at Istana Negara on Monday, January 18<sup>th</sup>, 2016, President Joko Widodo reminded

all police authorities and the Indonesian National Army to seriously deal with and prevent forest fire. The President had threatened to remove the apparatus in the area if in 2016 their region covered by fire. *I have promised the Chief of Police and the TNI Commander about reward and punishment. The burning area widen, more and more, bigger, replace and remove. The good, of course will get promotion.* (tempo.co, January 18<sup>th</sup>, 2016). With regard to the government's attention, the Indonesian National Police also paid special attention in handling the land/forest fire in 7 provinces, such as Riau, South Sumatra, Jambi, West Kalimantan, Central Kalimantan, South Kalimantan, and Papua. Improvements in the 'C' should decrease the number of land/forest fire events significantly. But in reality, throughout 2016, fire incident still occurred, though on a scale which was not as severe as the previous year (2015).

Minister of Forestry and Environment, Siti Nurbaya, explained that in 2016 Indonesia established emergency alert for land and forest fire to anticipate and prevent haze disasters as in previous years. Each parties, including the military and police continually asked to do surveillance (nasional.kompas.com, March 15<sup>th</sup>, 2016). However, a number of fires still occur in 2016, although the number of events was lower than before. According to the Ministry of Environment and Forestry, the number of hotspots in 2016 by August 29<sup>th</sup>, 2016 was 2,356, reduced 74.64% from 2015 (sipongi.menlhk.go.id, accessed October 21, 2016). In early July 2016, an increase of land/forest fire hotspots rated relatively high in Riau province which were allegedly carried out by humans, along with the dry season (nationalgeographic.co.id, July 11, 2016).

In the perspective of Catastrophe Criminology, land/forest fire will still happen when the control factors (C) enhanced, explained by the presence of various attractors. An understanding of this attractor is basically seen as a cause, but as the factor that could be seen as a trigger. Although when it is viewed in the relation of cause and effect, attractor in certain circumstances could be seen as the cause of land/forest fire, not the trigger. In this study, some of the things are seen as attractor's factor are; climate change (El Nino), damage to the characteristics of the peatland becomes drier, the tenure conflict between companies and communities, conflicts between people and wild animals, unclear licensing, especially given by the village level, lack of political support in prevention, weak of law enforcement capacity in the proof of infringement, contradictory role of researcher/academics in proving the elements of violations of land/forest fire, lack of knowledge regarding the conservation of peatland, plantations inefficiency, and the emergence of organized groups that burn land/forest. It should be understood that the attractor is characterized unpredictable within a certain timeframe. Not necessarily this attractor factors to trigger the same in circumstances

or any other time. This paper even sees, in the perspective of catastrophe theory, nothing is seen as a determinant cause because event is seen to be triggered more by the attractor. Every events, including a crime is something situational

Interviews conducted with Greenpeace Indonesia, The Indonesian Forum for Environment (WALHI), Ministry of Environment and Forestry, and departments in the province, the climate change with rising temperature of the earth as well as the heat wave in recent years made Indonesia vulnerable to land/forest fire. According to the Chief of Data and Information of the National Agency for Disaster Management (BNPB) Sutopo Purwo Nugroho, El Nino in Indonesia in 2015 increasing the threat of land/forest fire in Sumatra and Kalimantan. El Nino is a rise of the sea's surface temperatures in the Pacific Ocean, especially around Chile and Peru, followed by a drop of temperature on the water surface in some areas in Indonesia. The outcome was the occurrence of drought in some parts of Indonesia. About 16 provinces in Indonesia affected by drought (bbc.com, nationalgeographic.co.id, August 26, 2015).

Destruction of peatland ecosystems is another attractor for land/forest fire. The expansion of palm oil and acacia plantations in Indonesia, such as in Sumatra and Kalimantan conducted on peatland with high acidity and wet characteristics. To allow cultivation, cannalization being done to reduce the water content in the peat soil. In an interview with Indradi from Greenpeace Indonesia, April 13<sup>th</sup> 2016, explained that the widespread use of peatland for plantations or agriculture began in the 1990s. One of the programs that started by the government to open the peat land area of 1 million hectares for rice cultivation in Kalimantan. For the construction of the so-called 'mega rice project', peatland drained through cannalization. For the planting, systematically drained peatland thereby increasing susceptibility to fires [13].

Land conflicts between the community and companies and conflicts between the community and the animals also become an attractor for land/forest fire. Some cases of burning land are being done to drive wild animals from residential areas or estates residents. In addition, based on the information obtained from the Forestry and Plantation Office of Riau Province, local residents who do not own area/land are usually working the uncultivated land that actually owned by a company. Residents clear the land by burning, but later spreads. The issue of local residents also becomes attention on issues of land/forest fire. The habit of land clearing by burning rated accounted for land/forest fire to be broader. However, this factor could not be seen as a determinant factor for the burning technique of land clearing in the context of shifting cultivation carried out by indigenous peoples in Sumatra and Kalimantan who own certain techniques that have been done for generations. This technique could actually prevent the

spread of fire, because the burned area has been restricted by emphatically. To protect the traditions of indigenous peoples, in environmental law No. 32 of 2009 confirmed that the practice of burning is allowed to a maximum area of 2 hectares and only for self needs or not for business. But ironically, in law enforcement in cases of land/forest fire, local residents actually being widely criminalized most. Sonny Keraf explained, in fact the source of fire come from land owned by the company. Sometimes they hire local people to burn the land as land clearing for planting. In Rasio Ridho Sanim's perspective, General Director of Law Enforcement Environment and Forests, said in an interview April 13<sup>th</sup> 2016, land/forest fire could not be seen to stand alone, because this event is also associated with annexation or expansion of land, forest encroachment, illegal, or other business activities.

Whereas, regarding licensing, Sonny Keraf, explained that since political decentralization in Indonesia which increasinging liberally become a trigger for the political costs to be more expensive. The local election level 1 (province) and the head of region level 2 (counties) to be very expensive so the candidates need funds support from other parties. One of the potentials is from company. According to the EIA (2008), environmental crime has been linked to corruption. Individuals at corporations or individuals in a formal position (government) and a power see environmental crimes as an opportunity to earn money. They accomplish this by giving permission, facilitate, or turning a blind eye. The most serious thing is the involvement in a long time by the unscrupulous individuals from police, military, and government organizations. The habits of bureaucracy, the weak law enforcement, as well as corrupt apparatus will further aggravate the crimes against the environment.

Under existing regulations in Indonesia, burning the forest land is illegal. There is also the principle of Strict Liability (full responsibility), in which every concession owner (company) must be responsible in case of fire in its concession area. However, the application of this principle is not expressly made it involves demonstrating the starting point of the fire. It relates also to the inability of experts in determining the area and who should be responsible. This is why members of the Working Committee for Land and Forest Fire House of Representatives, Arsul Sani, expressed their several peculiarities in the process of issuing Warrant Termination of Investigation (SP3) conducted by the police in Riau province. SP3 was related to 15 companies allegedly involved in land and forest fires in Riau in last July 2015. From the aspect of expert witnesses presented turned out to not have the competence, the educational background of the witness is not relevant (in the field of health education for non-forestry). In addition, the expert witness status as an employee of the Environmental Agency of Riau province conflict

of interest (nasional.kompas.com, September 27<sup>th</sup>, 2016). Greenpeace Indonesia found the analysis of conflict between the experts brought in by law enforcement with the witnesses brought by the company, even though both come from the same university and even the faculty, in the examination in court.

According to Harris and Cavanaugh (1991), the most basic element of every crime is a violation of the laws of the element that is done deliberately. In the context of criminal law, the government must prove whether the offender act 'knowingly' (conscious) and 'willfully' (with intention). However, it becomes its own weaknesses in the enforcement of environmental law that has asserted a matter of strict liability. When used in the rules on the environment, the terminology (knowingly) requires evidence of 'general intent' only. This general intention should be related to economic interests, especially from the owner of concession. According to Rasio Ridho Sani, land/forest fire is also related to illegal logging, land/forest grabbing for business activity. Communities and companies clearing the land by burning because it is cheaper. Full responsibility should be applied easily through the analysis of the general motif.

Land/forest fire that occurred in 2016 was partly motivated by the company's disobedience to the policy of restoration. Many fires occurred in the concessions belong to the same industry with fire in 2015. This repetition occurrence happened because companies ignored government warnings since November 2015 to immediately seal the canals in order to re-wet and make the peat land to be non-flammable (tempo, August 28, 2016). Post of major fire in 2015, the government made a policy of bulkhead canal, an effort to make the peat becomes wet again. Insulation is an effort to contain water channels in a certain height above the ground by creating a drag on the canals that had been established earlier in order drying for planting. If the previous channel used to drain water into the river, then the bulkhead channels regulate the flow so that not all water flows into the river, so the peat soil remains moist as it should be. However, despite this policy a priority in fire prevention, not all companies build these bulkhead in their concession.

Weak political support have contributed to the attractor to occur and spread further land/forest fire. According to Sonny Keraf, the Indonesian parliament which consists of many parties and have different views on transboundary haze agreement. One of the debate was the reciprocal of ratification, particularly in its relation with Singapore. Singapore is considered disposing of waste reclamation and certain areas in Riau in Sumatra, so some lawmakers said it would lend support when Singapore pressing matter of haze being fair.



According to Rasio Ridho Sani, land/forest fire caused by three factors, namely human, peat ecosystem degradation, and climate or weather factors. Climate and ecosystem degradation of peat creates a greater risk of fire, especially during the dry season. While human behavior and the company would be the most important. One of the problems faced by the Ministry of Environment and Forestry was land grabbing their efforts undertaken by an organized group or a part of the company. In which someone uses another person to do illegal logging and forest fires create and then expand the land. According to Rasio Ridho Sani, there is a possibility that the group associated with the company. Many cases in Riau province, these organized groups are from other provinces to burn, especially when forestry patrol was not around.

The Indonesian Forum for Environment also found that in all the provinces, the highest point of the fire was in the concession company. According to Zenzi Suhadi (WALHI), in an interview on April 12<sup>th</sup> 2016, in Central Kalimantan, it seemed like hotspots within the company's concession was not a lot, but once traced there was the latest modus operandi in which companies burn beyond the concession area first in order to get the new licenses for the areas that have been burned.

Referring to the EIA (2008), there are a few things could be identified as the background that keeps the attention and law enforcement of environmental crime weak. First, environmental crime is often perceived as a 'victimless crime' (victimless crime). Secondly, this is done as an organized crime, in which the perpetrators of environmental crimes build networks to avoid detection through collusion with corrupt apparatus. Formal positions or authorities see environmental crime as an opportunity to earn money, through; giving the permission, giving the facility, to direct involvement of police officers, military or other government apparatus. The background which described by EIA in the case of land/forest fire in Indonesia could also be seen as a pull factor. Especially the power relations that allow violations committed with authority. The relation between the government and the corporation is one of the most instrumental.

In Indonesia, a negative note on corporations' role in the occurrence of environmental issues has been quite long. Large companies with the permission given by the government, in many cases demaging the environment and getting reaction from the public. The case of construction PT. Inti Indorayon Utama, a company that produces pulp (pulp) and rayon (material to make textile fibers) in Porsea, North Sumatra, is one of the most social turmoil. According to Silaen (2006) since the company started the business the company has caused controversy by cutting down pine trees felled since 1986. However, they are not included as material of pulp production, but sold

to other companies. In addition, another controversy was regarding licensing. Since its establishment, the environment minister and the industry minister at the time did not approve the establishment of PT Indorayon upstream region Asahan river because of its environmental impact. But capital investment coordinating agency of North Sumatra still approved the establishment of the plant and determine its location. Meanwhile, on the part of local communities, citizens of indigenous land owners (where the establishment of the factory) never give their consent.

According to Bakan (2004: 2-6), the mandate of the corporation is to satisfy personal interests continuously without exception, regardless of whether it will harm the other party. This mandate makes pathological nature of this corporation, for organizing human life. Corporations increasingly dictate the decisions to be taken by the party that actually supposed to supervise them in the government and started to control areas of society that were previously attached to the public domain. Furthermore Bakan (2004: 64) describes, as a psychopathic creature, the corporation is unable to recognize or act upon moral considerations to avoid itself from actions that harm others. This is what makes the corporation is always in the position of the causes or triggers.

## 5. Catastrophic Criminology: A Theoretical Reflection

As explained previously, seeing the crime in terms of catastrophe theory is looking at a crime as an event. Crime in this case is not seen as a phenomenon caused by the determinant factor, as the etiological perspective. As an event, the crime will be viewed in a situational trigger context (not the cause) complex. According to Murphy (1991), in one locale reality is arranged according to a specific axis, while in another area space may have a completely different contour. In the case of a natural disaster, an understanding about it could only be done when it counts historical context, environmental, social, economic, and political in which the disaster occurred at a time in which people are conditioned in a vulnerability.

According to Penny Green (2005), many disasters were direct effects of the economic and political decisions which were distorted and actions by the state. Green and Ward (2004) identified six types of organizational deviance state those are relevant to an understanding of natural disasters as a state crime, namely; systemic corruption, collusion with the state corporate crime, collusion of the state in legal activities undertaken by the elite itself, a war crime, neglect, and post-disaster cover up. Green (2005) exemplified how the damages and loss of life from earthquakes are the consequence of the state of organizational deviance. Such as giving permission to

build the building that is not compliant or audit deliberately loosened because of the relationship between the authorities and business property.

Land/forest fire in Indonesia, in the perspective of catastrophic criminology sees it as a complex event. This theoretical perspective is essentially trying to encourage change in a deterministic view, in the context of causality. There is nothing wrong with the view of the actual etiological or causality. However, in a perspective which sees a crime as a complex event that allows an explanation that would include factors that have been considered own little meaning in the causative relation. Crime, in this case the land/forest fire, is an event that is very situational, which could not be explained simply by a deterministic model. At a more macro level, the analysis may include global catastrophic criminology capitalist structures as one of the attractors, especially in terms of how the macro-structure relationships with the local capitalist structures. The development of palm oil and acacia plantations in Indonesia, could not be separated from investment from other countries, such as Malaysia and Singapore. In the context of social control, catastrophic criminology's theoretical perspective, it is encouraging efforts to make contextual or local policies. Through an effort to discover as much as possible factors in the background of the land/forest fire, control policy will be much more effective.

## References

- [1] Arthur Stee, Lynn, *Catastrophe Theory: the first decade*, in Sciences News, Vol. III, No 14 (Apr 2, 1977), pp. 218-219+223.
- [2] Bahagijo, Sugeng, *Apakah Nawa Cita Sejalan dengan SDGs?*, in Jurnal Tanah Air WALHI, August edition, 2015, pp.27-38.
- [3] Bahagijo, Sugeng, *Janji Sustainable Development Goals: kebebasan, kesetaraan, dan ekologi*, in Prisma Jurnal Pemikiran Sosial, Vol. 35, No.2, 2016, pp.37-53.
- [4] Bakan, Joel. 2004. *The Corporation: pengejaran patologis terhadap harta dan tahta*. Jakarta: Erlangga Publisher.
- [5] Bartels, Dennis. *Catastrophe Theory and Dialectical Change in Guyanese Race and Class Relations*, in Current Anthropology, Vol.22, No.4 (Agustus, 1981), pp. 435-436.
- [6] Carrabine, Eamonn, et.al. 2004. *Criminology: a social introduction*. London and New York, Routledge.
- [7] Environment Investigation Agency (EIA). 2008. *Environmentl Crime: a threat to our future*. London: Emerson Press.

- [8] Garland, David, *The Commonplace and the Catastrophic: interpretations of crime in late modernity*, in *Theoretical Criminology*, Vol. 3 (3), 1999, 353-364.
- [9] Green, Penny, *Disaster by Design: corruption, construction and catastrophe*, in *The British Journal of Criminology*, Vol. 45, No.4 (July 2005), pp. 528-546.
- [10] Green, Penny dan Tony Ward, *State Crime, Human Rights, and the Limit of Criminology*, in *Social Justice*, Vol. 27, No.1 (79), Race, Class, and State Crime (Spring, 2000), pp. 101-115.
- [11] Harris, Christopher and Patrick O Cavanaugh, *Environmental Crimes and the Responsible Government Official*, in *Natural Resources & Environment*, Vol. 6, No.1, Government Liability (Summer, 1991), pp. 20-23, 60-63.
- [12] Kolata, Gina Bari, *Catastrophe Theory: the emperor has no clothes*, in *Science*, New Series, Vol.196, No. 4287 (Apr 15, 1977), pp.287+350-357.
- [13] Mizuno, Kosuke, et.al (ed). 2016.*Catastrophe & Regeneration in Indonesia's Peatland: ecology, economy & Society*. Singapore: NUS Press.
- [14] Murphy, John W. *Catastrophe Theory: Implications for probability*, in *The Americould Journal of Economic and Sociology*, Vol. 50, No.2 (Apr, 1991), pp. 143-148.
- [15] San Antonio, Jaclyn T. 2011. *A Criminology of Catastrophe: A Critical Analysis of Imperialistic State Crime and the Haiti Earthquake*. Thesis. The Faculty of Social Science and Humanities Criminology, Institute of Technology, University of Ontario.
- [16] Silaen, Victor. 2006. *Gerakan Sosial Baru: Perlawanan Komunitas Lokal Pada Kasus Indorayan di Toba Samosir*. Yogyakarta: IRE Press.

## Online Reference

- [17] [bbc.com](http://bbc.com), *El Nino Pengaruhi Kebakaran Hutan di Indonesia*, Wednesday, August 26<sup>th</sup> 2015, accessed on February 6<sup>th</sup>, 2017
- [18] [m.tempo.co](http://m.tempo.co), *Kebakaran Hutan, Jokowi Ancam Copot Kapolda dan Pangdam*, Monday 18 January 18th, 2016 accessed on October 21<sup>st</sup>, 2016.
- [19] [m.tempo.co](http://m.tempo.co), *Greenpeace: kebakaran hutan terulang di lahan yang sama*, Sunday, August 28<sup>th</sup> 2016, accessed on October 21<sup>st</sup>, 2016.
- [20] [National.kompas.com](http://National.kompas.com), *Menteri Siti: Indonesia Siaga Darurat Kebakaran Hutan*, Sunday, August 28<sup>th</sup>, 2016, accessed on October 21<sup>st</sup>, 2016.
- [21] [National.kompas.com](http://National.kompas.com), *Anggota Panja Kebakaran Hutan Pertanyakan Saksi Ahli yang Jadi Rujukan SP3 Polda Riau*, Tuesday, September 27<sup>th</sup> 2016, accessed on Oktober 21<sup>st</sup>, 2016.

- [22] Nasional.kompas.com, *Ditemui Menteri Siti, KPK Siap Bantu Perbaiki Sektor Kehutanan*, Wednesday, September 14<sup>th</sup> 2016, accessed on October 21<sup>st</sup>, 2016.
- [23] Nasional.kompas.com, *Tujuh Kapolda Dipanggil Kapolri Terkait Penanganan Kebakaran Hutan*, Friday August 11<sup>th</sup>, 2016, accessed on October 21<sup>st</sup> Oktober 2016.
- [24] Nationalgeographic.co.id, *Awal Juli 2016, Pembakaran Hutan di Riau Meningkatkan Tajam*, July 11<sup>th</sup>, Juli 2016, accessed on October 21<sup>st</sup> 2016.
- [25] Nationalgeographic.co.id, *Kebakaran di Kalimantan dan Sumatera Akibat Pengaruh El Nino*, Wednesday August 26<sup>th</sup>, Agustus 2015, accessed on February 6<sup>th</sup>, 2017.
- [26] Sipongi.menlhk.go.id, *Satgas Karhutla Berjibaku Demi Langit Tetap Biru*, Monday, August 29<sup>th</sup> 2016, accessed on October 21<sup>st</sup>. 2016.