

Cause and Effect of Anti-Illegal Logging Movement in Indonesia

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Abstract— The study has an aim to describe the cause and effect of anti-illegal logging in Indonesia. System approach was employ by case studies on anti-illegal logging in Indonesia and statistical descriptive of disaster occurrence. This study measure disaster occurrences and measured the impact after year 2011 until present time in the Riau Province. By reviewed Indonesia's policies as the anti-illegal logging movement and describe each of verse and chapter on 23 law of Indonesia, bring as the cause of disaster cases. Further description was the effect from the anti-illegal movement in Indonesia which resulted as disaster appearance on several location, especially in Riau Province. Content analysis and descriptive analysis as the analysis method were carried out to answer the objective of this study. The result of this study was found, there were four basic phrase on anti-illegal logging movements in Indonesia's policies stated implicitly and bring ambiguous to the enforcement and punishment. The structure of model on the policies to erase illegal logging belong to Indonesia caused many inconsistency. Therefore, it bring negative impact and caused the disaster appearances as the consequences of non-responsive of anti-illegal movement in Indonesia from 2005 to 2007. Disaster were appear and describe within the last 5 years as the impact of illegal logging. (Abstract)

Keywords-component; *anti-illegal logging, Indonesia, disaster impact*

I. INTRODUCTION

Forestry has both tangible and intangible potential which give important contribution to economic development of Indonesia. Forestry play important role shown from the contribution of increasing foreign investment, employment and improving economic growth [1]. Therefore, illegal logging brought negative impact, potentially to Indonesia economics situation. It was occurs due to imbalance on supply and demand mechanism. Logs' demand higher rather than supply in Indonesia. The forestry industries got supplies wood as raw materials from industrial of timber. However, the forestry industries often forced to seek wood as the raw material from natural forest since they could not receive insufficiency of raw material. Moreover, the timber's price from natural forest was cheaper than legally issued timber. Walhi Riau [2] explain concerning supply of timber from industrial timber plantations and community forests was increase the number of legal timber supply to achieve the market balance point of raw materials.

In 2007, the area of forestry in Indonesia was 112.3 million hectare and mostly were located in three provinces, which are Riau, Kepulauan Riau and Central Borneo provinces. In this study, researchers focus only to Riau provinces since the area was potential near to Malaysia. Said [3] described the width area of forest decreasing through 59.62 milion hectares caused by illegal logging annually. It impact to massive deforestation in Indonesia.

Riau province has width as 9,456,260 hectare which contain as protection forest (4.20%), asylum forest and jungle tour (4.77%), limited production forest (20.84%), permanent production forest (19.73%) and conversion production forest (50.44%). Since 1992-1998, protection, asylum and jungle tour forest have damage for 27 percent of the width area. Furthermore, on 1998 to 2002, those got damaged for 53 percent and only 291,000 hectare left in Riau province. In the other side, the opening of peat land to industrial plantation by burning caused massive deforestation. Those damages were caused by forest product utilization which were not followed by rehabilitation activities and land conservation. The activities were have been going on for a long period and causing severe damage. Another factor is the practice of illegal logging. Both of those factors were devastating impacts because they involve in multiple parties and many political interest. Automatically, the accumulation of both causes has the potential to cause ecological disaster which harm to people living surround and also global community, in current and future generation [4].

Illegal logging bring impact to the ecological disaster directly, in example drought, flood or even landslide. During 2006 to 2007, there were 840 disasters occur in Riau province which implied to 7,303 death and 1,140 people missing. Disasters destroy bio diversity of Indonesia annually caused by illegal logging. Riau province lost their forestry until 3.7 million hectare in 24 years which since 1982 to 2005 and predicted Riau only has forestry 476,233 hectare on 2015 [5]. The main factor of forestry destruction was oil palm development project which reach into 2.7 million hectare and need to expand another 8.02 percent in annually to fulfill the needs of pulp and paper belongs to two companies (PT. RAPP and PT. IKPP).

Since this matter has took government attention, President of Indonesia issue Presidentil Instruction No.4 Year 2005 concerning Eradication of Illegal Logging in Indonesia,

regional police institution in Riau has eradicate illegal logging project in Riau province (in 2005). Riau province establish illegal logging team which consist of Police Institute and Forestry Department (or Ministry of Forestry), they success drag 14 timber companies under PT. RAPP and PT. IKPP. They stated as the suspected for illegal logging in 2005. However, in the end of December 2008, those were free from indictments caused by insufficiency of the evidences. Furthermore, those has obtain legal officialy statement to perform another illegal logging activities to supply the customer demands. Concerning to this dilemmatic problems, this research is to obtain the comprehensive study in the legal system on protecting Indonesia' forest from illegal logging, particularly in Riau province which has effected on ecological, economic and social aspects.

II. RESEARCH METHODOLOGY

A. Methods

To compose a policy model and legal system from anti-illegal logging movement, this study need to significantly contribute to the sustainable development of Indonesia. Illegal logging problem need complex and strong resolve which involce to the legal system and integrated policy. The failure on the legal system and legal overlapping were trigger illegal logging consistency in Indonesia. Regional autonomy push strongly to the natural resource exploitation to improve economic growth on local income. Concerning to this matter, law system from central to local government in illegal logging need to be studied in-depthly.

To study legal and policy system in anti-illegal logging, researcher need to identify and analyze all legislation sources. Through this substantial analysis concerning illegal logging, researcher need to analyze the performance of all legislation. The classification of categories of evaluation and formulation models in legal and policies system would provide suggestion to improve the legal and policy systems related to overall in forest management.

System approach was applied to support this study. Content analysis and gap analysis in the substance of legislation was used as the method of modelling. The fact of the legislation enforcement related to illegal logging in Riau Province was tested on the model prepared in order to get the simulation of the result. The research framework was presented in figure 1.

This study use primary data which consist facts of law violation took place in Riau province. Primary data was collected by indepth interview to several group of key informants. Researcher was also carried out field observation in the logging forest. Key informants was consist of state police, local police in Riau province, several law enforcement who contribute to the anti-illegal logging movement. To complete the holistic and integrated analysis of this study, secondary data which consist of all legal and policy system concerning illegal logging arranged in Indonesia.

Researcher identify all legislation concerning illegal logging meaning and activities. Hereafter, content analysis

was carried out with 4 indicators, which are sustainable development, environmental decay, illegal logging and sanctions.

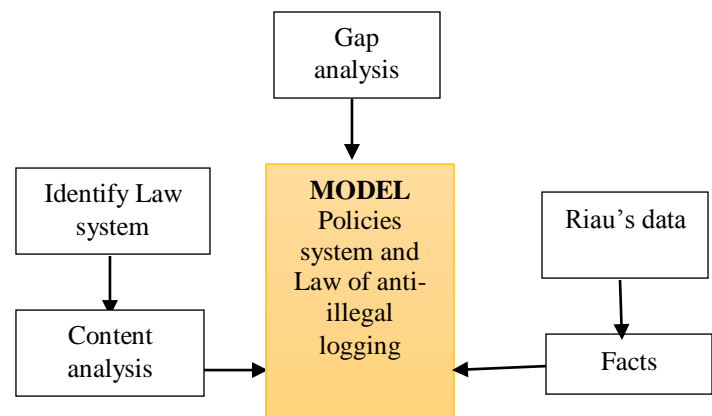


Figure 1. Research Framework

Sustainable development has meaning as development process (land, city, bussines, social, etc) which has principle to comply recent needs without sacrifice further generations' need [6]. One of main factor from sustainable development is to improve the environmental damage without immolate economic development needs and social justice. Indicator for environmental damage is environment deterioration. It is characterize by natural resource dissapearances, ecosystem decay and the extinction of wild fauna. In the other side, illegal logging has a meaning as logging activities, carriage and selling illegal timber or unauthorized by local stakeholders. Sanction has indicator as the legal steps dropped by the country based on the violation from current regulation.

Through content analysis, whole legislation system will be viewed based on those 4 indicators. The analysis measured through the similarity of meaning and/or perception researcher through its definition. When the substance contains the keywords among 4 indicators, researcher categorized as containing the indicator (explicit) and grouped in the same meaning. It means that everyone who reads the substance of the rule and associates with the established indicator would have the same understanding. If the substance contains the meaning related to the indicator but was not explicitly describe the meaning, so, that was not necessarily one's interpretation had the same understanding. It is categorized into implicit groups and multi-interpretive understanding.

B. Study of Area

Indonesia consists of thousand island and Riau province located in Sumatra island, the northeast side of Indonesia. Riau province is the border area between Indonesia to Singapore which consist of 9 districts and 2 regencies (figure 2). It has 8,9 million hectare width. Riau province has relatively flat expanse and has a lowland configuration. The largest type of soil is yellow red podzolic spread in eastern hills and red laotosol in

the west side. It has soil acidity, low nutrient content, high clay content and the presence of toxic elements in the soil. Riau's topography is relatively flat and slightly bumpy to the hills with steep slopes.

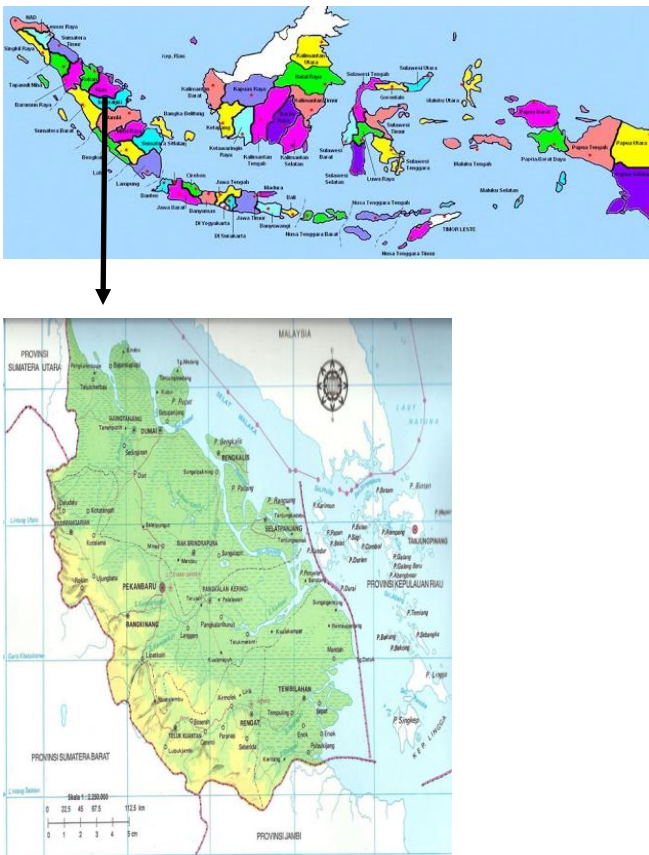


Figure 2. Map of Indonesia and Riau province

Population of Riau province is 6,344 million people in 2015. It is well-recognized as the richest province in Indonesia with natural resources as the main support for regional revenue. In example oil, gass, rubber, and palm. More than 85% population were Moslem and has Melayu as the main ethnics. Poverty is the main problem in Riau province, approximately 25% people measured as poor people eventhough Riau province is well revognize as the richest province in Indonesia. Land use in Riau province are dominated by forest and agricultural land use. More than 50 percent land use is occupied by forest which consists into 6 type of forest (Table 1).

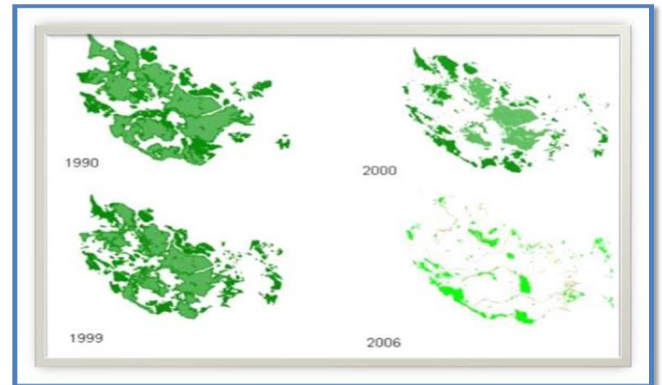
TABLE I. LAND USE MANAGEMENT OF RIAU PROVINCE, 2006

| Forest type | Width area (ha) | Percentage |
|-----------------------------|-----------------|------------|
| Protected forest | 228,794 | 2.66 |
| Nature reserve forest | 831,852 | 6.19 |
| Permanent production forest | 1,605,763 | 18.67 |
| Limited-production forest | 1,815,950 | 21.12 |
| Mangrove | 138,434 | 1.61 |
| Non-forestry area | 4,277,964 | 49.75 |

a. Pemda Provinsi Riau (2006)

III. RESULT

Illegal logging changed the tropical forest who covers Riau province since 1990-2006 (figure 3). It was carried out by illegal companies who did illegal logging without any sanction given to them. Therefore, analyzing through content analysis concerning legal system and policy system are needed to protect Indonesia forest.



a. Minister of Forestry (2007)

Figure 3. Significantly damage of tropical ofrest in Riau province 1990-2006

Hierarchically, legal system concerning law and policy for anti-illegal logging lead by *Undang-Undang Dasar 1945* (Figure 4). This research is identified 23 law and policies which consists of one clause of *Undang-Undang Dasar 1945*, fourteen of Law, four of Government regulation, and four of Presidential decree. Those was grouped based on substantial content of law and regulation which consists of 64 percent of natural resources and environment, 9 percent of spatial and administration, 27 percent of behavioral and culture.

A. Content analysis of Law to support Anti-Illegal Logging

Content analysis for 23 of legal systems concerning anti-illegal logging movement were analyze through 4 indicators, sustainable development, environmental damage, illegal logging and sanction. Those were categorized by explicit and implicit stated in 23 of legal system. When the legal system mention explicitly means that the indicator were mention clearly in 23 of the law and policies. In the other hand, when the indicator were not clearly stated, but researcher found the meaning from those four indicators, means to implicits categorized.

Based on the content analysis for *Undang-Undang Dasar 1945* as the highest legal system, researcher divided based on four indicators as follows:

- (1) Sustainable development were found explicit on clause 1 (versa 1-8), clause 2, clause 3, clause 5, clause 6, clause 7, clause 9 versa 1, clause 12, clause 13 versa 1,2,3, clause 17 versa 1 and 2, clause 18, clause 23, clause 24, clause 26, clause 29, clause 30 versa 1 and 2, clause 32, clause 33, clause 34, clause 35, clause 36 versa 1 and 2, clause 38, clause 41, clause 42, clause 43. Sustainable development was also found implicitly and include multiple interpretation in clause 44.

- (2) Illegal logging was found implicitly and had multiple interpretation on clause 4, clause 5, clause 10, clause 12, clause 13, clause 14, clause 15, clause 18, clause 25, clause 27, clause 28 and clause 44.
- (3) Environmental damage had found implicitly and having multiple interpretation on clause 8, clause 34 versa 1,2 and 3.
- (4) Sanction as the important keywords to support the enactment of anti-illegal logging was explicitly found on clause 9 versa 3 and clause 43. However, sanction indicator which has multi-interpretation found on clause 34, clause 39, clause 40 and clause 41.

Content analysis through the hierarchy of law system had been found that was not indicate clearly to four indicators which has been found in Undang-Undang as the highest law in Indonesia' law system. Sustainable development was found in implicit and had multi-interpretation which bring negative impact to lower grade in Indonesia' law system. Thus, impacted anti-illegal logging movement enact in many problems. Analysis concerning four indicators in the law system for natural resources and environment could be seen in table 2. Among 10 of regulation concerning natural resources and environments, three regulation were not clearly describe four indicators of sustainable development, illegal logging, environment damage and sanction. Anti-illegal movement face severe position by the weakness of forestry protection law system.

TABLE II. CONTENT ANALYSIS OF LAW SYSTEM CONCERNING NATURAL RESOURCES AND ENVIRONMENT

| Law system | No. of clauses | Indicators | | | |
|--|----------------|------------|----|----|----|
| | | SD | IL | ED | S |
| Law No. 5, Yr 1990-conservation | 44 | 40 | 24 | 27 | 12 |
| Law No. 41 Yr 1999-Forestry | 84 | 77 | 57 | 76 | 26 |
| Law No. 22-Oil and natural gass | 67 | 36 | 1 | 20 | 12 |
| Law No. 7-water resources | 100 | 75 | 1 | 39 | 13 |
| Law No. 19 Yr 2004-replacement of government policies from Law NO. 41 Yr.1999-Forestry | 2 | 2 | 1 | 1 | 1 |
| Law No. 4 Yr 2009-Mining, mineral and coal | 175 | 75 | - | 23 | 9 |
| Law No. 32 Yr 2009-management and environment protection | 127 | 58 | - | 17 | 35 |
| Law No. 45 Yr 2004-Forestry protection | 57 | - | - | - | - |
| Law No. 3 Yr 2008-replacement of Law No.6 Yr 2007-Forest management and Forest utilization | 38 | - | - | - | - |

| | | | | | |
|---|-----|---|---|---|---|
| Gov' regulation No. 23 Yr 2010-enactment of mining and coal business activities | 115 | - | - | - | - |
|---|-----|---|---|---|---|

Note: SD abbreviated as sustainable development; IL abbreviated as Illegal Logging, ED abbreviated as Environment damage; S abbreviated as Sanction

Law No. 41 year 1999 concerning Forestry was found had strong enactment and protection to anti-illegal logging movement. It was found, among 84 clauses, this law could describe concerning 77 keywords of sustainable development, 57 keywords of illegal logging, 76 keywords of environment damage and 26 keywords for sanction. This law were protect forestry as it should be by making the huge enforcement to reduce illegal logging. However, Law No.41 Year 1999 was replaced by Law No.19 Year 2004 which found less keywords on four indicators compare to Law No. 41 Year 1999. Meaning as barrier to anti-illegal movement to constitute pacification of forest, particularly in Riau province.

Spatial and administration were include only in the Government Regulation for No. 26 Year 2008 concerning National Spatial Plan and No. 23 Year 2010 concerning Implementation of Mining and Coal of Business Activities. Through spatial and administration group, mostly described sustainable development in those government regulation. Researchers were only found one keyword of illegal logging, 5 keywords environment damage and 9 keywords on sanction. Surprisingly, government regulation concerning national spatial plan was not clearly mention concerning environment damage and sanction. Furthermore, government regulation concerning implementation of mining and coal of business activities was briefly describe illegal logging in small part.

Moreover, culture and behavioral was described in seven policies in Indonesia law system (see table 3). The result of content analysis for culture and behavioral were less number of four indicators description, only Law No.7 concerning water resources could describe sustainable development in 23 keywords and environments damage in a keyword. There were no sanction description among 7 policies on culture and behavioral law system.

TABLE II. CONTENT ANALYSIS OF LAW SYSTEM CONCERNING CULTURE AND BEHAVIORAL

| Law system | No of clauses | Indicators | | | |
|---|---------------|------------|----|----|---|
| | | SD | IL | ED | S |
| Law No. 22-Oil and Natural gass | 43 | - | - | - | - |
| Law No. 7-Water resources | 49 | 23 | - | 1 | - |
| Law No. 4 Yr 2009-Mining, mineral and coal | 48 | - | - | - | - |
| Gov Regulation No. 23 Yr. 2010-Mining business activitiess and coal | 115 | - | - | - | - |
| Presidential Instruction No.5 Yr 2004 | 12 | - | - | - | - |

| Law system | No of clauses | Indicators | | | |
|---|---------------|------------|----|----|---|
| | | SD | IL | ED | S |
| Law No. 30 Yr. 2002-KPK (Corruption Eradication Commission) | 72 | - | - | - | - |
| Presidential Instruction No. 9 Yr. 2011-Corruption Prevention and Eradication of Corruption | 102 | - | - | - | - |

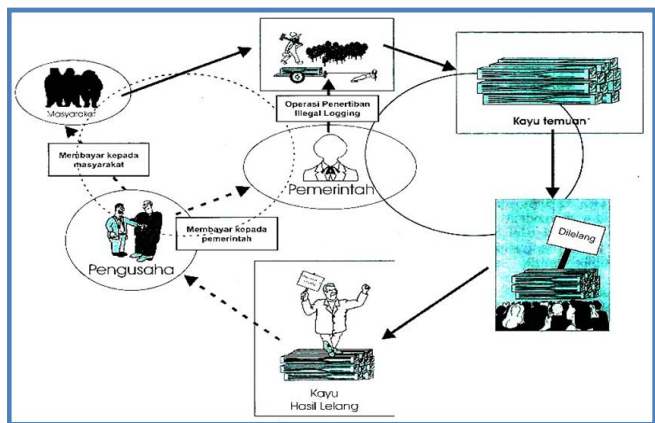
a. analyzed by author

5. "Strong relationship" between deliberation of regional leaders, elite group in central government and forestry entrepreneur group.
6. Irresolution between deliberation of regional leaders which support sustainable development concept

Main factors was deliberated take place because of the weak law system and inconsistency of law enforcement bring multiple criminal impact. Since Riau province is well-known as one of the rich province in Indonesia bring corruption as high findings case as the impact of illegal logging criminality.

B. Facts of criminal impact

Illegal logging brought many consequences including multiple criminal impact in Indonesia. Law enforcement is the most important thing to reduce illegal logging, but difference perception and point of view on law acquaintance. Researcher describe what have been done by the state and local police in Riau province on 2007 by sending final warning statement to 13 cases of illegal logging (among 14 cases) in Riau province.



a. Ramdan (2008)

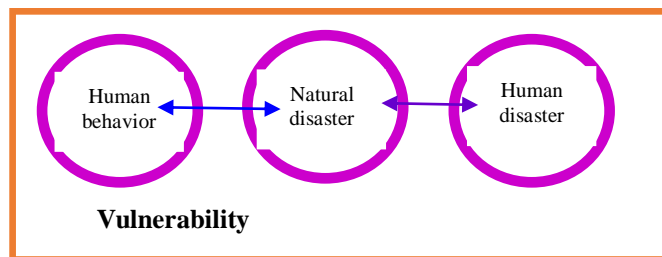
PICTURE 1 ILLEGAL LOGGING MOVEMENT

Illegal logging movement has well-organized and recognize as Logging Mafia in Indonesia. In this mafia system, each parties has their own contribution and metamorphosed as ecocrime to carried out Human Right infraction. Through indepth interview to the key informants, researchers found several main factors the core problems why anti-illegal logging movement had failed on the enforcement. Those, were:

1. Indonesia has weak law system of positive law concerning illegal logging eradication.
2. Overlapping on law system and inconsistency of positive law bring the cracks to the Logging Mafia and further criminals impact
3. Corruption indication
4. Integrity of law enforcer include lawyer which potentially bear compromise between those law enforcer.

C. Disaster Impact of illegal logging

Negative impact of illegal logging was not only found as demoralized people by many criminal cases found, but also appertain to the disasters. Human disaster was not the only occurs in Riau province as the impact of illegal logging activities, but the cause of those bring natural disaster in severe. Human behavior and culture impacted to criminal facts found in Riau provinces. Criminal facts bring negative externalities on environmental damage which caused directly to the natural disasters. Human behavior was enacted back and forth to the natural disasters impact (see picture 2).



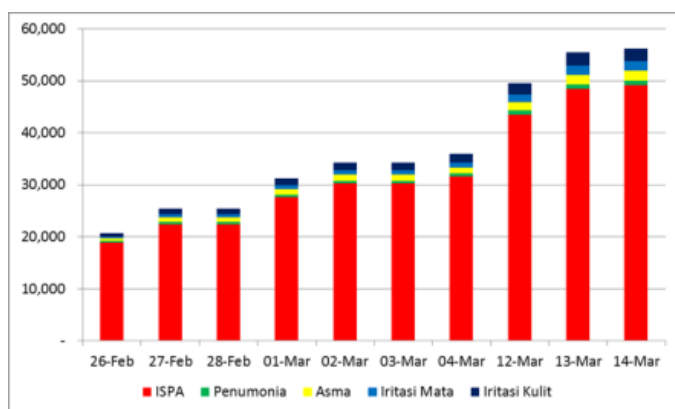
PICTURE II PATTERN OF DISASTER CAUSE AND EFFECT FROM ILLEGAL LOGGING

Illegal logging in Riau province impacted to the natural disaster event. Group of people who carried out illegal logging were made ditch surround their base to travel their logs. Digging the ditch expect to increase the volume of water under the soil, so it could use to transfer the logs to the truck for carrying logs to the city. However, this water was consist of high acid which poisoned to the fishery in the river. This accid, indirectly, poisoned to the human suround Riau province which mostly consume fish from the river. Toxic has just brought to the people live near to the river and caused to the several diseases. On 2016, reported many fishes in Kampar river exposed to the toxic and directly impacted to the several people who consume. PT. RAPP, pulp and paper company, was pointed as the company who need to responsible concerning to this problem. PT. RAPP also found several times charges as the defendant for illegal logging case.



The impact of illegal logging was not only found for human disaster which effect to their decreasing of health capacities on family, but also impacted to the human security caused by natural disaster. This is why, illegal logging bring two ways arrow (see picture 2) of natural disaster and human disasters. Ecological damage is also the effect from human behavior which bring to the natural disaster, which bring directly to the decreasing of food sources to the people in Riau province. Unbalance situation caused by illegal logging impact disaster occurences in Riau province.

Disaster of forest fires happens in Riau province which is not only impacted to the national problem but also spread to the international section. Riau province located near to Singapore and Malaysia, those were the victims of hotspot disasters. Researchers found this phenomena as the two ways disaster occurences completed the evidence the impact of illegal logging brought complex problem in environments and human wealth. Picture 3 shows the number of diseases occurrence in 10 days on 2014 caused by natural disaster in fires. It was directly bring the human disasters event since respiratory diseases as Infectionous Respiratory diseases, Pnemonia, Asthma were increases more than 50 percent within 10 days.



PICTURE III DISEASES CAUSED BY FIRES IN FOREST OF RIAU PROVINCE.

Overall, disaster complexity in Riau province become the disaster circle of death. How it could covers and reduce the mortality? The truth ansvere should start to the prevention and precaution. It should start and manage from the highest level of enforcement which come up from the law system and law enforcement.

IV. DISCUSSION AND CONCLUSION

During New Era of Soeharto, Indonesia has concession as forest include the land of the forest. Meaning, it was include

the minerals, oil, gas, and precious stone which located in the land of the forest. Thus, brought many cheating activities drag into criminalities. Land of the forest was the highest pillage in Riau Province. During observation activities, the person who did looting were spread in every party of people on state security.

Anti illegal movement facing the hard opportunity to enforce when the criminalities were done by some people as in the level of state security. Furthermore, the law system has just weak and found many ambiguous for saving the land forest. The weak of law system especially on the positive law to support anti illegal movement made the disaster-death life cycle. Started from human disaster caused by the looting on the land of forest, injured and imbalance the environment. Therefore, natural disaster came up as the impact of human action. Chemicals water from digging the trench as to transport the log to the truck parking were spread to the farming land. It impacted to the human health and human life. The main recommendation for this problem is to reduce the overlapping of the law system and inconsistency in the positive law. Hereafter, the enforcement of the law system need to be carried out by the President and send the mandate to each of Ministry. The enforcement has to be in line to the sustainable development who protect environment as a whole, and Riau Province need to be mandate by the central government. That is why, Indonesia and Riau Province need "Forum Privilege Pregiatum"

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