

# Analysis on Illegal Mining Activities on Corridor Line or Boundary Marks Among Mining Territories in Indonesia

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## Abstract

Mining on corridor line is kind of mining activities to exploit off-the block natural resources. It involves a lot of parties such as land owner and related businessmen to set up mining equipment on lands with potential coal deposit. This study analyses partiality policy of mining regulation in Indonesia for mining on corridor line. The findings show that constitutionalization of policy for environment stated in Law no 9 of 2009 on Coal and Mineral Mining amended into Law no 3 of 2020 on The Amendment of Law no 4 of 2009 on Coal and Mineral Mining should give protection on environment in Indonesia. This is one of the manifestations of state partiality for environment protection resulting from law enforcement for mining on corridor line.

**Keywords:** constitutionalization, mining on corridor line

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## 1. Introduction

In several areas of Indonesia such as East Kalimantan, illegal mining practices keep taking place. It is proven by mining activities on corridor line which are left without supervision. Those illegal mining activities in East Kalimantan are similar to illegal logging activities for business occurred several years ago. *Off-the block logging* which is widely known for illegal logging is similar to mining on corridor line. On the glossary of forestry terms, it is one of the types of exploitation for off-the block natural resources. A lot of parties take part in off-the block mining such as land owner and businessmen who set mining equipment up on potential coal mining area. It is widely known that several settlement areas, farms and plantation areas have coal deposits. In addition, mining companies located close to potential mining are also take part in those illegal mining activities. The company prepares required documents as if coal minerals are from their legal mining location (<https://beritakaltim.co/penambangan-batubara-di-koridor-makin-liar-di-kaltim/> , Penambangan Batubara di “Koridor” Makin Liar di Kaltim, Sunday, March 10, , accessed on May 18, 2021).

Concerning regulation of mineral and coal mining management which is based on sustainable development principle, there is a need to analyse whether government as the beholder of managing right is able to give priority on national interest. It is due to vague meaning of partiality principle which is not stated clearly on Law no 4 of 2009 on Coal and Mineral Mining, its general provision and elucidation section. In case certain law contains special terms and definition, they should be explained clearly to prevent vague meaning (Indrati 2006, 145).

This study analyses partiality aspect on national interest related to mining activities on corridor line. Philosophical problems that might be analysed is that various interpretation on the meaning of partiality on national interest based on sustainability paradigm causes problems to occur. In other words, implementation of sustainability development paradigm on law norms fails to occur. There are several reason for the failure. The first is lack of understanding on principle of sustainable development that should cover determinant working principles for the whole process of development. Paradigm of sustainable development should be taken as ethics of developmental politics which are moral commitment on how to organize and implement them to achieve stated goals. Secondly, failed paradigm and ecological crisis are caused by paradigm of sustainable development asserting that developmentalism ideology should be put forward although it is a compromise to prioritize development process focusing on economy (Keraf, 2002, 167).

This law research is conducted through several steps namely identifying law facts and eliminating irrelevant factors to find law issues that will be solved, collecting law materials and relevant non-law materials, reviewing law issues based on the collected materials and drawing conclusion in the form of argumentation to answer prevailing law issues and to obtain prescription based on formulated argumentation stated in conclusion section. The writer employs philosophical, conceptual and statutes approaches which are used to review related regulations on Law no 4 of 2009 on Coal and Mineral Mining, Law No 3 of 2020 on the Amendment of Law no 4 of 2009 on Coal and Mineral mine and Law no 18 of 2013 on Prevention and Eradication of Forest Destruction. To give comprehensive review on state conducts based on law of state administration for various government functions, the writer also employs certain method to facilitate the process namely M.P.F.A.A.C which stands for *meaning, positioning, functioning, authority, actuating and controlling* (Sudarsono, 2015).

In the manufacturing sector today, human capital is still essential for most factories to carry out a variety of

manual operations, in spite of the rapid advancement of automation technology and robotics. Futuristic vision of “unmanned manufacturing” (Deen 1993) is forbiddingly expensive, because all its hardware components need to be computer controlled so as to freely communicate with each other; and yet, most of the outcomes are not promising (Sun & Venuvinod 2001). By and large, factories equipped with relatively simple machinery controls will require continuous attendance of human operators; for examples, textile mills, leather products, and medical appliances. With limited capital investments in production equipment, the main budget of their fixed costs lies on the workforce size (Techawiboonwong *et al.* 2006).

With regard to cost-effectiveness, labour planning always opts for the minimum amount of workers needed to deal with the daily operations, as well as the probable rate of disturbance (Lim *et al.* 2008). The workforce disturbance is often ascribed to absenteeism and turnover, which may result in considerable loss of productivity for any labour-intensive division (Easton & Goodale 2002). Buffering with redundant skilled workers (Molleman & Slomp 1999) or relief workers (Redding 2004) might be a direct solution to absenteeism; however, the rising labour cost must be justifiable due to the fact that underutilisation of labour during low demand seasons is considered a waste of resources. Absenteeism is the measure of unplanned absences from workplace due to some reasons like personal emergency, accident, illness, etc. Turnover occurs when an active worker resigns from the company of his own accord, thus leaving a vacant post until a replacement is found. If such disturbance has caused a large number of tasks become unattended and overdue, the company is then vulnerable to overtime cost, shrunk capacity and productivity, extra queuing time, lost business income, etc. In order to prevent these deteriorative effects, optimising the number of workers can be helpful. As a fundamental branch of knowledge in manufacturing business, workforce management will never fall behind the times. Therefore, it is worth an attempt to incorporate a novel methodology, such as HMS, into the state of the art of workforce sizing.

## 2. Mining Activities in Indonesia.

Indonesia is one of the countries having large natural resources. They are of two types namely renewable and unrenovable natural resources. The example of unrenovable natural resources is gold, silver, coal, diamond, nickel, manganese, and others. water, plantations and others belong to renewable ones (Nurjaya, 2010, 1). Unrenovable resources are assets of high economic values for Indonesia. To improve the value of unrenovable resources, government of Indonesia permits mining activities which are constructed as nature exploration activities. Mining is one or whole stages of activities in order to study, manage, and utilize minerals or coals including general research, exploration, feasibility study, construction, mining, dressing and purification as well as selling and post-mining activities. In short, mining activities covers (1) researching, (2) managing and (3) utilizing activities (Salim, 2014 page 15).

Regulations on mining management system in Indonesia are pluralistic in nature. It is caused by various types of mining contracts or permits which are prevailing and used in mining industry. For instance, there are some types of contracts which are based on Law no 11 of 1967 on Basic Provision of Mining and there are also other permits under Law no 4 of 2009 on Coal and Mineral Mining. Therefore, there is no umbrella act regulating mining activities. Various interpretation of regulation of mining activities causes sosiological problems (Mundzir, 2014, page 15).

In Indonesia, mining activities have lasted since hundreds years ago. It was started by miners from India and China. Gold and silver were first mining mineral especially in Sumatra and Kalimantan. The Gold and Silver are called Swarna Dwipa. Their excavation remains show that the activities have lasted for quite a long time and even it turned to be mining guidance for European minerals hundred years after (Sigit, 1992 page 66).

The Chinese have mined gold since 14<sup>th</sup> century in East Kalimantan. In the middle of 17<sup>th</sup> century, there was gold mine in East Sumatra which were opened by Vereenigde Oost Insische Compagnie (VOC). In 1710, VOC had copper purchasing agreement with Sultan Of Palembang in Bangka. In 1849, the first coal mining was opened in Pengeron of East Kalimantan by private company from Dutch namely *Oost Borneo Maatscappij* (OBM) and followed by copper mine in Belitung and Singkep in 1851 and 1887 (Department of Mining and Energy, 40 years of Role of Mining and Energy, 1945-1985, PAGE 100).

Indonesia is developing country which is characterized by development efforts in all sectors. National development is an effort to create sustainable improvement of human resources which is based on national capacity, utilizing science and technology development and taking global challenge into serious account. National development is the manifestation of national effort as stated in Indonesian Constitution of 1945. The goal of nation is to improve public prosperity and social equity which is conducted based on the provision of article 33 of Indonesian Constitution stating that “the land and water and natural resources are under state custody and used for the benefit of people prosperity” (Trihastuti, 2013 page 2).

The utilization, management and preservation of natural resources have been international concerns; therefore, many countries have come to agreement on various declaration such as Stockholm Declaration, Nairobi Declaration, Rio De Janeiro Declaration, Johanesburg Declaration and Earth Carter. International conference has also formulated concept of *sustainable long term and sustainable development*. Indonesia takes

part and is committed to natural resource management efforts as stated in article 28 H, verse (1) and article 33 verse (3) and National Constitution of 1945. It shows that government is responsible to fulfil people's right to obtain good and healthy environment (Puluhawaa, 2011, 307). Warranty of giving good and healthy environment is human basic right as stated in Stockholm Declaration of 1972. It is then used as the basis to formulate regulations on Nature Preservation and Management. They are Law no 4 of 1982 on Basic Provision for Nature Management which was then amended into Law no 23 of 1997 on Environment Management. The latter was then amended into Law no 32 of 2009 on Natural Preservation and Management (Istislam, 2012, page 307).

Law politics of natural resources management have been stated in article 33 of National Constitution of 1945. The article states that government has authority to manage natural resources which is then utilized for people's prosperity. Actually, the article refers to *economic share* between the government and the people (Safa'at, 2013, 130). It is proven by Law No 1 of 1967 on Foreign Investment and Law no 1 of 1968 on Domestic Investment which is then amended into Law no 11 of 1967 on Basic Provisions on Mining Policy. Unfortunately, the law opens the possibility of utilizing mineral mining without taking natural resources aspects and local people's interest into account. The weaknesses of Law no 11 of 1967 are (Nurjaya, 2008, 96).

1. It drives on the exploitation of natural resources to obtain profit and it is advantageous more to companies.
2. It is state-centered employing centralistic power approach.
3. It is sectorial in nature resulting in overlapping of regulations, policies and people interests.
4. It disregards justice aspect for local people.

The implementation of Law no 11 of 1967 on the Basic Provisions of Mining results in excessive exploitation which endanger preservation of nature. Thus, quality and quantity of environment are degrading. Timespan of 1867 up to now is regarded as new chapter of economic policy and mining development in Indonesia (Poeradisastra and Haryanto, 2016, 290). Preambles of Law no 11 of 1967 on the Basic Provisions of Mining states that:

“to accelerate national economic development to achieve just and prosperous society spiritually and materially based on Pancasila, there should be an maximum effort to manage and utilize all economic potentials in mining sector to give contribution to real economy”

However, paradigm of sustainable development bears some weaknesses. *Firstly*, there are no clear benchmark and indicator for sustainable development. It is more like commitment which is hard to measure. *Secondly*, the weakness lies on anthropocentric point of view which regards nature as tool to fulfil human needs and it is used as the basis or assumption for sustainable development. *Thirdly*, the assumption used states that it is human which is able to determine type of support for local and regional ecosystem. It is human who knows nature capability and they have right to exploit the nature without violating the limit of nature support. *Fourthly*, sustainable development paradigm bears on materialist ideology which has not been assessed critically. It is only taken for granted. Therefore, there is a need to reformulate the concept of sustainable development focusing on partiality principle for national interest in order to create environmental fairness. Based on the afore-mentioned information, it is crucial to conduct research on how to formulate partiality principle for the sake of national interest contained in Coal and Mineral Mining Law to create just and sustainable development. It is crucial because firstly coal and mineral are unrenueable natural resources and they are assets having economic values for national income. Secondly, partiality on national interest should be realized in mining activities in order to create development based on environmental justice. Paradigm of international justice is a concept of delivering environmental protection by putting environment as (quasi) law subject that might be act as law subject. On one side, sustainable development paradigm is a criticism for national development. On the other side, it is a normative theory offering new praxis of development to overcome developmentalism failure. Sustainable development paradigm is criticism for prevailing development ideology namely developmentalism ideology. As a normative theory, it encourages Indonesia to put aside the believe that economic development is the only objective of national development. It also urges Indonesia to give equal attention on socio-culture and environment developent to prevent the recurrent of present socio-cultural and environmental crisis (Keraf, 2001, 7).

Law politics on mining policy requires that mining activities should give equal benefit to related parties. Law politics contained in Law no 4 of 2009 on Coal and Mineral Mining gives the state supreme power to utilize mine sector for the sake of people's prosperity. Furthermore, one of main ideas stated in mining law is that to realize sustainable development, mining activities should be conducted by taking principle of environmental preservation, transparency and people participation into account. Regulations on mining industry is law politics to fulfil the spirit of Article 33 of National Constitution stating that land, water and natural resources are state-owned and utilized for the sake of people's prosperity (Mahfud, 2014, page 1).

Indonesia is developing countries characterized by development activities in all sectors. National development is an sustainable effort to improve the quality of human based on national capability by making use of science and technology an by taking global development into account. National development is national

objectives as stated in National Constitution of 1945. The objective is to improve public prosperity and social justice, by referring to provision of article 33 verse (33) of National Constitution of 1945 stating that “land, water and natural resources are state-owned and utilized for the sake of people’s prosperity” (Trihastuti, 2013, page 2).

Article 33 of National Constitution of 1945 is law politics or policy to determine direction of law development and democracy in natural resources management sectors and democracy as well as future economic democracy. Politics or policy of law concerns with basic law development including contents and form of law that will be formulated by the state and it is related to law politics (Manan, 1995, page 195).

### 3. Mining Activities on Corridor Line

Mining on corridor line is illegal mining activities. The corridor is used for transportation by making use of forest area outside other permitted area by those having license of corridor. It is road for vehicle made and/or used by permit holder of forest utilization or lend-use forest area beyond the scope of his permitted area. (the definition of corridor is stated in Regulation of Minister of Environment and Forestry no P.38/Menlhk/Setjen/Kum.1/2016 on Permission for Making and/or Using Corridor). Mining on corridor line damages forest due to the illegal use of forest area. Mining on corridor line violates the objectives of corridor road usage. On the other side, forest destruction gives massive impact because it is organized across nations using sophisticated modus operandi threatening the life of people. Therefore, in order to prevent and eradicate forest destruction, there is a need for effective punishment with deterrence effect based on solid law basis to ensure the effectiveness of law enforcement.

Permit holders of corridor utilization are required (based on article 19 of Regulation of Minister of Environment and Forestry no P38/Menlhk/Setjen/Kum.1/4/2016 on The Approval for Corridor Construction and Utilization): a. to secure forest area passed through by corridor due to illegal logging, land encroachment, illegal mining and or other illegal acts; b) to make and put traffic signs on certain places.

Permit for corridor construction might be given to: a) production forest, b) other area usage, (2) permit for corridor construction might be given to: a. production forest, b. protected forest, c. other area usage (3) to protection forest, conservation forest, permit might not be given to forest area of special usage. (4) Corridor is not allowed to pass seed plantation location, permanent measurement plot, research plot, area of genetic resources, seed plantation and collection. Article 4 of application and usage permit of corridor on production forest might be given to: a. holder of License for Utilization of Forest Timber for natural forest; b. holder of License for Utilization of Forest Timber for plantation forest; or c) timber utilization license. Article 5 (1) permit of corridor usage as stated on article 3 verse (2) might be given to existing corridors which are legally constructed. (2) Holder of License for Utilization of Forest Timber which is going to use corridor passing through protection forest are required to make integrity pact stating that they are: a) willing to cancel the permit in case encroachment of protection forest occurs, b) willing to replant the forest destroyed by illegal logging.

The addition of corridor in East Kalimantan drives various reaction. There is a rumour on establishment of ad-hoc committee for Mining Assessment in Regional of People Representatives of East Kalimantan Provinces which will be established on April 2021 at the latest. The task of ad-hoc committee is to give comprehensive supervision for mining activities in East Kalimantan. Member of Commission 3 of Regional People Representatives in East Kalimantan, Seno Aji said that the commission encourages the establishment of Mining Evaluation Committee and seek for approval from other fractions. “It is expected that proposal for establishing ad-hoc committee will soon be proposed” says Seno who are currently waiting for his appointment as chief deputy of people’s representative. He also said that the committee functions to encourages better management of legal mining and to stop illegal ones. According to him, there should be cooperation with other government apparatus. “Hopefully, the committee might be established on late March or early April”, says Seno, politician of Gerindra party. His commission is going to educate relevant stakeholders on illegal mining and its legal action. “thus, we will send official letter to chief of regional police department, office of public prosecutor, Central office of Police department and Commission of Corruption Eradication”. Head of Commission 3 of Regional People Representatives of East Kalimantan, Hasanudin Mas’ud states that he tries hard to encourage the committee establishment. “for us to be able to trace further illegal mining on those corridor”, he says. Hasan also says that there has been discussion about the committee in his commission. “It will be the first committee” Golkar Fraction will initiate it “ he says <https://detakkaltim.com/index.php/2021/03/04/sorot-tambang-koridor-dprd-kaltim-segera-bentuk-pansus-pertambangan/> , *Sorot Tambang Koridor, DPRD Kaltim Segera Bentuk Pansus Pertambangan*, accessed on May 19, 2021).

Concerning mining activities, there are several theories of ownership prevailing differently from one nation to others. The difference is caused by the influence of different philosophical view of mining theories. There are two crucial things in concerning mining. Firstly, who owns subsurface mineral or before it is mined? Secondly, who owns mineral after being mined? In America and Australia, private land owner possesses subsurface mineral. In Russia, the state is the owner of all mining material. Furthermore, the king is the owner of mining

material in royal state. In Indonesia, the owner of mining mineral is people of Indonesia (Sutedi, 2012, page 26). He elaborates basic ideas of Law no 4 of 2009 on Coal and Mineral Mining. They are: 1. As unrenueable resources, coal and mineral are state-owned and their utilization and development are conducted by the central and regional government as well as business enterprise; 2. Government gives opportunities to enterprises of Indonesian legal bodies, cooperatives, individuals or local community to utilize mineral and coal based on licensed that should be in line with principle of regional autonomy. The licenses are granted by central and/or regional government in line with their authority. 3. Regarding the implementation of decentralization and regional autonomy, management of coal and mineral mining should be based on the principles of externality, accountability, and efficiency involving central and regional government; 4. Mining industry should be able to give social and economic impacts for people's prosperity; 5. Mining industry should be able to accelerate regional development process and to improve small-to-middle-scale economic activities and also to encourage the establishment of supporting industries and 6. In order to create sustainable development, mining activities should take principles of environment preservation, transparency and people participation into account.

One of the biggest challenges faced by countries with rich natural resources like Indonesia is illegal mining. It creates not only financial disadvantage but also cause various problems such as environment destruction, social conflict, economic gap and even new poor class of people ( ([http://www.iesr.or.id/2013/10\\_Discussion\\_on\\_Illegal\\_Mining\\_and\\_its\\_Challenge\\_in\\_Indonesia\\_toward\\_ASEAN\\_Economy](http://www.iesr.or.id/2013/10_Discussion_on_Illegal_Mining_and_its_Challenge_in_Indonesia_toward_ASEAN_Economy). Jakarta; Institute for Essential Services Reforms. Accessed on May 19, 2021). In Bangka, conventional mining which is part of local economic activities destroys environment. Conventional mining give biggest contribution on land and forest destruction reaching 150.000 acres or 30% of forest in Bangka Belitung Province (Zulkarnaen, 2005, page 131). Environmental destruction also occurs on mining quarries which are undergone reclamation process by PT Timah (Budiman, 2007, page 51).

Utilization of natural resources through mining activities should be based on Protection Plan and Environment Management. Mining activities should fulfil good practice of mining principle. As stated by Suyartono (Suyartono, 1997, page 7) as quoted by Tri Hayati (Hayati, 2015 page 268), that mining activities should take the following factors into account: firstly, physical and chemical environment, secondly, social environment and local people and the last post-mining environment.

#### **4. Scope of Law no 18 of 2013 on Prevention and Eradication of Forest Destruction**

The scope of Law no 18 of 2013 on Prevention and Eradication of Forest Destruction are preventing forest destruction, eradication of forest destruction, institutionalization, people contribution, international cooperation, witness protection, report and information, funding and witness.

The objective of law no 18 of 2013 on Prevention and Eradication of Forest Destruction is to protect forests in Indonesia because they are one of the largest tropical forests in the world. Forests in Indonesia are crucial for other countries to reduce the impact of global change of climate. Therefore, in Law no 18 of 2013 on Prevention and Eradication of Forest Destruction, it is stated that the utilization of forest should be well-planned, rational, optimum, and accountable by taking preservation function and balance of environment into account in order to support sustainable management and utilization of forest for the sake of people's prosperity. The utilization and management of forest should be accurate and sustainable by considering ecological, sosial and economic function to preserve forest for future generation as stated in preamble of the Law.

There is a need for serious efforts to develop sustainable forest development due to massive illegal logging, illegal mining and illegal plantation. They have caused loss for government and destroy socio-culture life of people and turn issues level of global warming into national, regional and international issues. Currently, forest destruction has been more massive and complex. It doesn't happen only at production forest but also protected and conservation forest. It also turns into a special crime with enormous impact and it is also organized because it involves local and international parties. The destruction has reached a level that should be taken seriously because it endangers the life of people. There have been efforts to prevent forest destruction. However they are not effective. It is due to no strict regulation on organized forest destruction crime. Therefore, there is a need for umbrella act in the form of law to tackle the problem effectively and efficiently and to give deterrent effect. Based on the afore-mentioned information, we come to conclusion that eradication of forest destruction through the implementation of the law should put forward the principle of justice, legal certainty, and sustainability of state responsibility, people participation, priority and coordination. Then, the law should have repressive and restorative aspect to give strict and complete umbrella act for peace officer to give deterrent effect. There is also a need to improve capability peace officer and coordination among related parties by establishing special body to prevent and eradicate forest destruction. Another crucial factor is improving people participation in preserving forest, developing bilateral, multilateral and international cooperation to eradicate forest destruction crime; ensuring sustainable forests by preserving them and surrounding ecosystem for the sake of people prosperity. The scope of forest destruction stated in the law covers process, mechanism and type of forest destructions in the form of illegal logging and/or illegal forest utilization. Furthermore, the definition of illegal logging is all illegal



and organized activities to utilize timber forest. The illegal uses of forest area are organized and illegal activities in forest area in the form of plantation area and/or mining without license from related ministry

Law no 18 of 2013 on Prevention and Eradication of Forest Destruction aims at preserving Indonesian forest which is one of the largest tropical forest in the world. Forests in Indonesia influence sustainability of other countries especially its role to reduce global warming. Therefore, Law no 18 of 2013 on Prevention and Eradication of Forest Destruction (<https://www.jogloabang.com/pustaka/uu-18-2013-pencegahan-pemberantasan-perusakan-hutan>), "Law no 18 of 2013 on Prevention and Eradication of Forest Destruction" accessed on May 19, 2021).

The law emphasizes on eradication effort of organized forest destruction crimes, meaning that they are conducted by group consisting two people or more and work together to destroy forest. It excludes traditional cultivation of local people. The exception of traditional cultivation aims at protecting people's way of life around forest area. The prevention effort by formulating policy from central and regional government should take people participation into account. The law elaborates the category and types of organized forest destruction either directly or indirectly. To improve the effectiveness of forest destruction crime eradication, the law should be equipped with procedural law covering investigation, prosecution and trial (ibid).

Main problem in eradicating of forest destruction crime is on the law enforcement. It is influenced by its factors with positive and negative impact. According to Soerjono Soekanto, those factors are 1) the law itself, 2) law enforcement officers. they are those formulating and implementing the law; 3) infrastructure or facilities supporting law enforcement; 4) the people; it is where the law applies; and 5) culture; the result of people thought in their life. Among them, people, culture and law enforcement officer are three most important things. The three are crucial components in law enforcement. Besides that, effective law enforcement requires leadership that should meet two requirements. The first is that leadership should be effective driving factor for law enforcement. Secondly, it should be example for people around by showing integrity and law-obey full character. Another important aspect for law enforcement is law acculturation process, socialization and education. It is impossible for certain law norm to be obeyed without awareness, knowledge and understanding of law subjects. Therefore, acculturation, socialization and education of law should be developed in such a way in order to create constitutional state in the future (Maizardi and Saputra, 2018, page 78).

It is in line with article 33 verse (3) of National Constitution of 1945 stating that land, water and natural resources are state-owned and utilized for the sake of people's prosperity. Therefore, forests as one of the natural resources are also state-owned. However, forest destruction keeps taking place. Law no 18 of 2013 on the Forest Prevention and Eradication enacted by former Indonesian President, Dr. H. Susilo Bambang Yudoyono in Jakarta on August 6, 2013. Law no 18 of 2013 on the Prevention and Eradication of Forest Destruction enacted by Ministry of Law and Human Right, Amir Syamsudin in Jakarta on August 6, 2013. Law no 18 of 2013 on Prevention and Eradication of Forest Destruction registered in Indonesia State Gazette of 2013 no 130. The elucidation of Law no 18 of 2013 on the Prevention and Eradication of forest destruction is registered at Indonesia State Gazette no 5432.

Several related theories used in this study are (Salim, 2014, page 67).

#### 1. Modernization Theory

The theory elaborates that poverty on agricultural country is caused by internal factors of related country. Modernization as social movement which is revolutionary (rapid transformation from traditional to modern), complex (through various ways and discipline), and systematic turns to be global movement influencing people's life through gradual steps toward progressive convergence.

Rostow on Theory of Economic Growth (Faqih, 2013, p 55). It is a version of modernization and development theory. It is believed that human factor (not structure or system) is the main focus and that social transformation called development is evolutionary process from traditional stage to modern one which are known as *the five-stage scheme*. The first stage is traditional society. The second is take-off pre-condition society. The third is take-off society. The fourth is maturity growth society. And the last is industrial society or high mass consumption society.

#### 2. Dependency Theory

This theory focuses more on external factor causing poverty in certain countries. It is believed that poverty is caused by external powers causing relevant countries fail to develop. Development process should anticipate environment destruction. High-productive country might be at the stage of poverty. It is due to their high productivity fail to anticipate its impact on environment. Therefore, developments turn to be unsustainable (Faqih, 2013, 263). Environment and development are integral part. Development is conscious process by human to achieve better life (to achieve people prosperity). It means that the essence of development is to achieve better life than before. We have to realize that environment is not only concerned with environmental dimensions. It also covers land, water, air space, as well as human and their action (Fadli et al, 2016, p 17).

## 5. Conclusion

A functional structure made up of holons is called holarchy. The holons, in coordination with the local environment, function as autonomous wholes in supra-ordination to their parts, while as dependent parts in subordination to their higher level controllers. When setting up the WOZIP, holonic attributes such as autonomy and cooperation must have been integrated into its relevant components. The computational scheme for WOZIP is novel as it makes use of several manufacturing parameters: utilisation, disturbance, and idleness. These variables were at first separately forecasted by means of exponential smoothing, and then conjointly formulated with two constant parameters, namely the number of machines and their maximum utilisation. As validated through mock-up data analysis, the practicability of WOZIP is encouraging and promising.

Suggested future works include developing a software package to facilitate the WOZIP data input and conversion processes, exploring the use of WOZIP in the other forms of labour-intensive manufacturing (e.g. flow-line production and work-cell assembly), and attaching a costing framework to determine the specific cost of each resource or to help minimise the aggregate cost of production.

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