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Analysing Policy Formulation for Coal Mining Activities within State Forest Zone in Indonesia: A case study of East Kalimantan Province

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Abstract

The formulation of policies regarding coal-mining activities in state forest zone has usually been complicated by the natures of coalmine, actors involved in the coal mining industries, and the goals to achieve sustainable resource management. This study uses Institutional analysis and development's (IAD) framework and descriptive analysis to explore factors affecting the policy formulation. East Kalimantan was selected to be the study site due to its abundant coal deposits and numbers of mining business license (IUP) issued by local governments. The study indicated that coalmines within state forest zone could be characterised as a common pool resource (CPR) where many participants involved in the utilisation of the resource due to its simple technological requirements, although it could be categorised as a capital-intensive activity.

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Actors involved in the coal-mining activities have colluded in conducting the license process; therefore all mining licensing proposals have always been approved. None of them has been rejected. The practices of corruption, collusion and nepotism, known as KKN, happen in the utilisation of coal mines within state forest zone in East Kalimantan was caused by the biophysical characteristic of coalmines, gaps or weaknesses of the implementation of laws/regulations, and poor monitoring system carried out by civil societies.

Keywords: Mining in state forest zone; institutional analysis; and corruption; collusion and nepotism; political economy.

1. Introduction

The division and determination of state forest areas in Indonesia, based on its function, started in 1980s through Agriculture Ministerial Decree (AMD) No. 837/Kpts/Um/11/1980 on Criteria and Procedures for Determining Protection Forest, AMD No. 681/Kpts/Um/8/1981 on Criteria and Procedures for Determining Nature Conservation and Forest-based Tourism, and AMD No. 683/Kpts/Um/8/1980 on Criteria and Procedures for Determining Production Forest. Based on this regulation, the guidance for classifying protection and production forests were determined by a weighted scoring system for three forest biophysical factors, namely: (i) land slope class, (ii) type of land prone to erosion, and (iii) rain fall. The example of the forest classification is the determination of protection forest where: (i) total score of slope, soil class and rain fall intensity is more than or equal to 175; (ii) slope is bigger than or equal to 40%; (iii) the area located in the elevation of 2,000 m above sea level; (iv) it has a soil type that more prone to erosion and location at slope is bigger than or equal to 15%; (iv) it is a catchment area; and (v) forest area is considered as a beach protection area [1].

The utilization of forest resources for three forest classifications (protection forest [HL], conservation forest [HK] and production forest [HP]) is regulated through Government Regulation (PP) No. 3/2008 *in lieu* PP No. 6/2007 on Forest Arrangement and Formulation of Forest Management Plan, and Forest Utilization. Forestry Minister Regulation (*Permenhut*) P.26/2012 *in lieu* P.50/2010 on Procedures for Obtaining Business License for Utilizing Timber (IUPHHK) and *Permenhut* No.19/2012 *in lieu* P.14/2009 *in lieu* P.62/2008 on the Working Plan of IUPHHK. Furthermore, Community Based Forest Management (CBFM) conducted in HL and HP is regulated through Permenhut No. P.52/2011 *in lieu* P.13/2010 P.18/2009 *in lieu* P.37/2007[2].

Law No. 41/1999 on Forestry regulates the use of forest area for the development sectors other than forestry. This can be conducted in HP and HL areas without changing their main function. The use of forest for mining sector is implemented through the provision of a forest leasehold licence from the Minister of Environment and Forestry by considering area limitation and time period, and the sustainable environment. HL is prohibited to be openly mined. Another related regulation include GR No. 34/2002 that has been replaced by GR No. 6/2007. It waited for 3 years for issuing PP No. 61/2012 *in lieu* of No. 24/2010 on Forest Area Use. Another regulation issued is Forestry Ministerial Regulation No. P.16/ Menhut-II/2014 on the Guidance for Leasehold of Forest Area.

The forest utilization and usage has been coloured by collusion, corruption and nepotism (KKN) [3, 4]. This condition occurred during New Order Government era (1996-1998). Furthermore, KKN habits are still going on based on the finding of Anti Corruption Commission (KPK) through the program of "National Movement to Save Natural Resource" [5]. In other side, Ministry of Forestry has revised many regulations of leasehold of forest area every year. This indicates that there is a lack of understanding of policy makers toward biophysical condition and regulation regime for forest area use. Thus, the study of the policy formulation of mining activities in state forest zone is needed. The research objectives are: (i) to analyse the influence of biophysical condition and property rights system on policy formulation of coal mining in state forest zone, (ii) to explore the action arena and interaction pattern formed as a result of action situation faced by participants, and (iii) to analyse outcomes formed as a result of interaction pattern.

2. Methods

2.1. Research framework

Research framework used in the policy implementation of mining business in forest area is the Institutional Analysis and Development (IAD) framework [6] as illustrated in Figure 1.

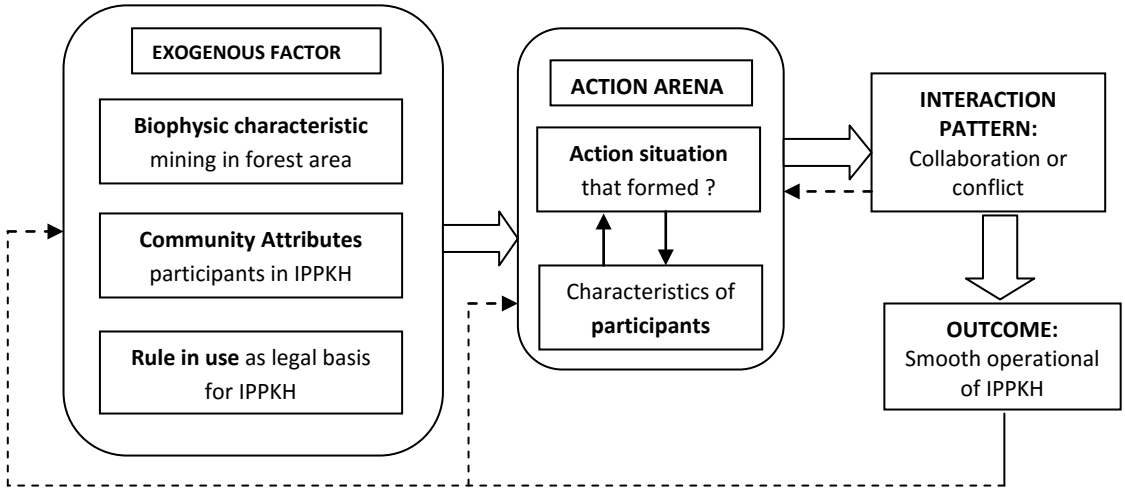

Figure 1: IAD framework analysis (Source: [6]; modified)

IAD framework is a strong framework that has been widely used for designing policy experiment and theoretical test and model empirically in relation to economy, ecology, institutional and sustainability of common pool resources (CPRs) systems [7]. As a framework, IAD assists the identification of elements (including relation among the elements) required for considering the institutional analysis. This framework arranges the diagnostic and dogmatic analyses and provides all compatibility type that is relevant to this framework. IAD is categorized as a flexible and multi-purpose analysis tool [6]. In the IAD framework, there are three exogenous factors, namely biophysical characteristics, community attributes, and rule in use. In this research, only biophysical characteristic is analysed to find its influence on the policy formulation of mining in forest area.

2.2. Data collection and analysis

Primary data collection included physical condition of state forest zone (total state forest zone and its state forest land use), regulation of state forest use (license regime of forest area use), existing state forest area usage's licenses (type and total of leasehold of state forest use) and action arena of state forest zone use. The data collection was conducted through a *depth interview with purposive sampling* technique for relevant stakeholders, such as coal mining businessmen, relevant ministry officials, local government officials, Non Government Organization, and Academicians. In order to understanding the action arena and interaction pattern occurred in the policy formulation of mining business in state forest zone and its evalution criteria carried out by reviewing relevant literatures and research publications. Secondary data collected by this study include development and performance of mining business in forest area, license process in Ministry of Energy and Mineral Resource (ESDM) and Ministry of Forestry were collected through literature study, internet browsing and direct visiting to relevant institutions with the research topic.

Data analysis was done by descriptive qualitative using IAD framework [6], and supported by content analysis [8], and descriptive qualitative analysis [9] for policy on mining business in state forest zone.

2.3. Study site

The research location is East Kalimantan (Kaltim) Province, Indonesia. The choice of Kaltim as the research location is the significant deposit of coal. This province has a coal deposit of 37.5 billion tons and become a coal richest province in Kalimantan Island [10]. Annual coal production in Kaltim achieved 192.97 million tons or 86% from national coal production and its average annual export was 145.82 million tons or 73% from total national coal export. Total mining business license (Izin Usaha Pertambangan-IUP) issued by 11 districts/cities in Kaltim achieved 1,476 companies with mining area of 5,406,566 ha [11]. Total forest area in Kaltim Province (SK Menhut No. 79/2001) is approximately 14,651,553 ha with several forest functions, namely: (i) conservation forest (2,165,198 ha), protection forest (2,751,702 ha), limited production forest (4,612,965 ha), and production forest (5,121,688 ha). At present, the number of coal mining business in the forest achieved 159 units which cover forest areas of 362,061 ha [12].

This study has a limitation since it is approached through a case study; therefore, it could not be generalised for a wider area or a higher level of analysis. However, an analytical generalization can still be conducted. The similar analytical process can be applied in for other cases with different commodities.

3. Results and Discussions

3.1. Biophysical condition of mining business in forest area

Coal Nature Condition

There are information needed for natural resource characteristics in the IAD framework, namely: (i) nature of the resource, (ii) technology of withdrawals and the exclusion of other beneficiaries, and (iii) other resource condition including flow patterns, excludability, substractability and clarity of boundaries [13]. In the

explanation of biophysical condition of mining in forest area would be focused on (i) natural condition of coal mining, (ii) coal mining uses simple technology and high capital intensive, and (iii) coal products as common pool resources (CPRs).

Natural resources for energy supply such as oil, natural gas, uranium and coal can be classified as non renewable resources due to their natural production process is slower that their total utilization rate [14]. The coal resource in East Kalimantan exists in the surface of the soil so that mining technology used is open pit mining [15]. This technology is simple one that requires excavators and dump trucks. This equipment can only be provided by certain and wealthier people than the common people. It means that certain people group is given a chance and chance of other people group is closed. This is supported by the fact that in principle, science provides technology with objective character and free from the subjectivity of the founder. However, in practical use, the technology becomes subjective due to the discrimination of the users [16]. The coal resources are CPRs because if someone consumes the coal would limit other people consumption (substractability) and in its management has difficulty to exclude potential beneficiaries (exclusion). These two attributes of CPRs are important to identify the theoretical core problems faced by individual or more individual or group that utilize the resources [17].

3.2. Property Right System and Community Attribute

Community attribute in the managing of mining in forest zone is characterized by (i) suitability of policy values and forestry bureaucrat culture, (ii) understanding level of IPPKH policy, (iii) interest of ego-sector in IPPPKH, and heterogeneous preference toward IPPKH policy strategies. Bureaucracy in Indonesia has basic values, namely (i) power oriented, (ii) regulation oriented, and (iii) corrupt mentality [18]. These values influence the misuse of authority and license process done by corruption, collusion and nepotism (KKN) approach. There is different understanding in philosophy of leasehold of forest zone and its reality in the field for its main stakeholders. The term of leasehold means that the lender should return the leased goods in the original condition. Therefore, An author in [19] criticized the term of forest zone used for mining is a euphemism word toward the tem of forest destruction because the mining has to change the landscape totally, except for closed mining activity. Interest of ego-sector has put forestry position under the mining sector through the presence of Inpres No. 1/1976 as its dead bullet [20]. Author in [3] pointed out that sector approach has not a flexibility to conform to natural resource characteristics such as complex function and benefits and beyond administration boundary. This approach is one of main causes for natural resource destruction. Participants' preference toward IPPKH strategies is not homogenous so that there is collision and conflict of interest between central and local governments. Central government wants to revise IUP and IPPKH policies in incremental steps, however, local (provincial) government wants to implement moratorium policy on mining in the forest zone. This moratorium policy has been disapproved by district governments, therefore, the Governor issued a governor regulation No. 17 year 2015 regarding the Governance of license and non license giving, and improvement of license governance in mining, forestry, oil palm estate sector in East Kalimantan.

3.3. Rule In Use

Regulations for Mining in Forest Area

There are several regulations to manage the mining in the forest area as the follow up of the existing Law No. 41/1999 regarding Forestry as shown in Table 1.

Table 1: Regulations related to mining business in forest area

No.	Type of Regulation	Title of Regulation	Substance of Regulation
1.	UU No. 41/1999 jo UU No.19/2004	Forestry	Regulate the forest administration and forest management
2.	PP No. 2/2008 jo PP No. 33/2014	Type and Tarrif of Non Tax Government Revenue (PNBP) for Forest Area Use	Regulate the PNPB for the use of forest area for other sector outside of forest activity
3.	PP No. 24/2010 jo PP 61/2012	Forest Area Use	Regulate the procedures for obtaining license of forest area use
4.	Permenhut No. P.56/2008	Determining of Impacted Area and Reclamation Area	Regulate the measure of impacted area for PNBP payment
5.	Permenhut No. P.60/2009	Guidance for Evaluating Mining Reclamation	Regulate the guidance for monitoring and evaluating the reclamation
6.	Permenhut No. P.16/2014	Guidance for Leasehold of Forest Area	Regulate the technical and administration procedure for obtaining license of forest area use

The last Permenhut No. P.16/2014 determines four forest area to be used for mining activities, namely: (1) in production forest within IUPHHK concession, (2) in production forest (HP) without the presence of IUPHHK, (3) in forest management unit of Perhutani (state owned company), and (4) in protection forest (HL).

In Ministerial level, there were 13 (thirteen) regulations for mining in forest area that have been replaced for 36-year period. In year 2006 there were 2 (two) regulations replacement from Permenhut No. P.14/Menhut-II/2006 to Permenhut No. P.64/Menhut-II/2006. This replacement is due to refusing of IUPHHK holder to give an approval letter for IPPKH in its concession area. However, in last five years (2010-2014) there were 4 (four) revised regulations [21]. These revisions really shown that policy makers did not well understand for a concept and philosophy of leasehold of forest area so that the policy and regulations made with a trial and error

approach. This is indicated by the revising of regulation done in every year.

3.3.1.1. Presence of IPPKH in Kaltim

Total mining business license (IUP) issued by 11 districts/cities in Kaltim achieved 1,476 companies with mining area of 5,406,566 ha consisting of (i) IUP exploration 1.029 units with area of 4.7 million ha and (ii) IUP exploitation 447 units with area of 0.69 million ha. The total mining area (5.4 million ha) occupied around 42.5% from the total Kaltim land area (12.726.752 ha) [22]. However, up to 2014 Kaltim has issued 1,443 IUP with total area of 5,407,370 ha consisting of: (i) coal mining companies of 1,260 IUP (94%) and (ii) mineral mining companies of 83 IUP (6%). Out of total IUP, there were 993 IUP with status of clean and clear (CNC) and 450 IUP without CNC status [23].

The use of forest area for mining and non mining activities in the licence approval stage, exploration stage and exploitation stage in Kaltim for period 2008-2012 achieved 159 units with total area 362,061.2 ha as shown in Table 2.

Tabel 2: Development of forest area use for mining and non-mining activities 2008-2012

No.	Year	License approval stage		Exploration stage		Exploitation Stage	
		Total (unit)	Area (ha)	Total (unit)	Area (ha)	Total (unit)	Area (ha)
1.	2008	10	14,989.8	2	3,894.1		
2.	2009	20	23,323.4	9	66,735.0		
3.	2010	10	16,008.4	13	36,249.1		
4.	2011	24	29,390.4	33	123,867.1	12	11,226.7
5.	2012	11	17,933.5			15	18,443.7
	Total	75	101,645.5	57	230,745.3	27	29,670.4
	Average		1,355		4,048		1,099

Source: ([24]; Processed)

Table 2 indicated that the total forest area use for mining and non-mining acitivies for each company is around 1,100-4,000 hectares. The biggest forest area use is in exploration stage (230.7 thousand ha), followed by license approval stage (110.6 thousand ha), and exploitation stage 29.7 thousand ha).

By using the composition between coal mining (94%) and mineral mining (6%), author of [23] estimation of the coal mining in forest area is calculated because the existing data (Table 2) is the unity data of mining and non-mining units. The legal license of coal mining business in forest area is 340,337 ha (94% x 362,061.2 ha) or only 6.3% from the total coal mining area (5.4 million ha) in Kaltim. It means that total legal forest area used for coal mining (340.337 ha) is still a half portion from the total illegal mining in forest area in Kaltim reaching 774,519 ha [22].

3.4. Action arena of forest area use

Action arena is internal factor consisting actors who interact in decision making process. This arena is social space that is important to explain action situation and participants that are working in collaboration, not working in collaboration, even they are conflicting each other. The action arena is central and important process because it is a heart from several analyses that involve institutional changing [17].

As already explaining in PP No.24/2010 jo. PP No. 61/2012, mining business in forest area done in HP and HL would determine the mining operational patterns. The Mining in HL merely done for closed mining operation. Forms of relationship among participants are arranged by Permenhut No. P/16/2014 regarding Guidance for leasehold of forest area.

Action Situation and Participant in License Processing of Mining in Forest Area

As mentioned in position aspect and influencing of policy actors, action situation and policy process on mining in forest area is a part from an action arena in IAD framework so that the discussion focus on action arena in the policy making process.

An action situation based on its order can be characterized using seven variable clusters, namely: (i) participants (consist of individual actors themselves or companies), (ii) position, (iii) potential outcomes, (iv) action related to outcomes, (v) controlling toward participant activity, (vi) types of raised information, and (vii) cost and benefit carried out to actions and outcomes. Participant characteristics toward action situation are influenced by 3 (three) variables, namely (1) preference variable toward action situation structure, (2) a way to proceed and use information, and (3) selection criteria used in decision making [6]. Action situation of policy on mining in forest area involved seven above variables can be seen in Table 3, whereas participant characteristics toward action situation can be explained in Table 4. Table 3 indicated that main participants (column 1) involved in managing mining business in forest area consist of eight participant group, namely Ministry of Forestry, Provincial Forestry Service, Forestry District Service, BPKH, BP2HP, BPDAS, IPKH holder, and NGO and Local Community. Position of participants (column 2) was determined for conducting tasks/authority or certain action type (column 3). Remark: BPDAS-PS=Development of watershed management and social forestry; BPDAS= Watershed management agency; BP2HP= Monitoring and untilization production forest agency); BPKH = Forest area stabilization agency; RHL=Land and forest rehabilitation; DR= Reforestation fund; NT=stumpage value; PSDH=Forest resource provision; KKN=corruption, collusion, and nepotism; PPKH=Leasehold of forest area; NGO=non government organization. There are six important aspects that needs for discussion in action situation of policy on mining business in forest area as description in Table 4 and participant characteristics shown in Table 5, as follows:

1. In license process, approval mechanism of IPPKH for mining business in forest area was made with involvement of many central and local government institutions. IPPKH was given by Forestry Minister (Forestry Minister could delegate it to DG and DG would also delegate it to its subordinate officers), whereas technical consideration of IPPKH was recommended by Governor after receiving considering

and recommendation from its head of provincial forestry service.

2. In technical consideration of IPPKH, types of important information are condition and potential forest resources, and coal mining content. This information would be basic calculation for payment of PSDH, DR and NT. Ideally such information type should be provided comprehensively by government as a forest asset owner based on its own inventory results. In fact, government often obtains the two information from the company's IPPKH proposal submission. This situation is prone to breaking the law by the company. This has been clarified by finding the unrecorded coal production and not paid the PNBP by mining owners [5].

Table 3: Action situation of license process of mining in forest based on Permenhut No. P. 16/2014

Participants	Position	Type of Action	Level of Control	Availability of Informa-tion	Cost-Benefit	Potential Outcomes Happened
Ministry of Forestry	License giver of PPKH	Giving of PPKH license	BPKH become a dominant participant in license process of mining in forest area Relation pattern among participants is very close so that there is no proposal IPPKH has been rejected	Important Information about condition and potential forest resource are more dominated by BPKH. Mining company has reliable information regarding condition and potential mining resource in forest area	For Govern-ment: costs for adminis-trative, services, and environmental improvement; benefits from revenue of PSDH, DR, NT, company tax, etc. For company: costs for PSDH, DR, NT, tax, and transaction cost, etc; benefits from selling exploited coals	Three possi-bilities: 1. License process of PPKH run smoothly without KKN 2. License process of PPKH does not run smoothly without KKN 3 License process of PPKH run smoothly with KKN In fact, no 3 mostly happens
Governor (Provincial Forestry Service)	Technical consideration maker for PPKH	Making of technical consideration for PPKH				
Head of District (District Forestry Service)	Helper to technical consideration making	Assisting of technical consideration making				
DG of Planologi (BPKH)	Checker of areal location for PPKH	Checking of areal location for PPKH				
DG of BUK (BP2HP)	Checker of license overlapping in HP	Checking of license overlapping in HP				
DG of BPDAS-PS (BPDAS)	Controller of reclamation and RHL	Controlling of reclamation and RHL				
IUP Holder	Applicant of IPPKH	Making proposal for IPPKH				
NGO and Local Community	Not involved	Evaluate the implemen-tation of IPPKH				

Table 4: Participant characteristics in action situation of license policy on mining business in forest area

	Participant	Resource/ Influence	Preference toward action situation structure	A way for processing/using of information	Selection criteria
1.	Ministry of Forestry	High	In general participant preferences would divide into three groups: 1. Group which likes status quo, relation between government officers and businessmen in KKN nuisance 2.Group which likes good and clean governance 3.Group which follows the dominant stream	Government: Information used for making plan, operational and reporting. Information sometime used as commodity that trade illegally (example map, finding of broken rules for license holders, etc). Company: Information used for making plan, operational and reporting Information sometime was manipulated for obtaining profit illegally (example false reporting of coal production).	Refers to formal regulation comprehensively; or refers to formal regulation but covered by *interests of many* participants
2.	Governor (Provincial Forestry Service)	High			
3.	Head of District (District Forestry Service)	Middle			
4.	DG of Planologi (BPKH)	High			
5.	DG of BUK (BP2HP)	Middle			
6.	DG of BPDAS-PS (BPDAS)	Middle			
7.	IUP Holder	High			
8.	NGO and Local Community	Low			

3. Related to cost, in formal way cost occurred by mining company are payment of PSDH, DR, NT, and company tax. However, in fact company spent not only for legal costs, but also for illegal transaction costs. This has been supported by the research finding that transaction cost arises in license process of mining in forest area is around Rp. 1-2 billion per unit of small scale license [25] and Rp. 7 billion per unit of big scale license [20]. Such transaction cost occurred has been anticipated and predicted because the rised action situation (transactional) refers to social arena, where participants (actors) with different interests interacts, exchanges good and services, solve problems, dominate one to others [6].
4. Related to benefit, in formal way benefits gained by government are revenues from PSDH, DR, NT and company tax. However, in fact government spent not only administration and services costs, but also substantial cost for improving environment after post mining activity because many mining companies did not conduct reclamation and left ex-mining area. Based on the experience of PT Adaro, cost for

reclamation of ex-mining area is approximately Rp. 70 million per hectare. However, the negotiated reclamation guarantee fund paid by the IUP holders to local government is around Rp. 25-30 millions per hectare [26].

5. Participant preferences toward action situation structure of policy on mining in forest area were divided into three categories, where the three would influence type of potential outcomes occurred. Empirical data shown that dominant groups are groups which likes status quo condition and maintain the KKN nuisance between government officers and company. This has been proved by there is no government's effort to implement good and clean governance for managing mining business in forest area and determine a reclamation cost standard to guarantee the right reclamation activity in the field.
6. Based on the above action situation structure, there are three possibility potential outcomes occurred. Empirical data indicated that potential outcome happened is license process of PPKH runs smoothly with KKN as nature consequences from participant preference that maintains status quo condition. This has been supported by interview of team of leasehold of forest use (TPPKH) in Kaltim. The team pointed out that as long as license process, there is no license proposal rejected by the TPPKH. All licenses of PPKH run smoothly with "scenario" that set before. KKN behaviour between bureaucrats and businessmen encouraged the presence of illegal mining that still operate securely. At present time, total non- procedural mining business in forest area are double compared to the legal license [22].

Based on above description, action arena of policy on mining business in forest area tends to create KKN practices and destruction of license implementation in the field. KKN practices happened as effects of power abuse on license process of mining in forest area. This situation is really in line with finding of three trigger factors of KKN, namely: (1) there is a chance of rent seekers embodied with allocation of authority and power in the regulations, (2) corrupted civil servants still have power in the government administration structure, and (3) weak and less effective of public institutions that have tasks to control and combat KKN [27].

Interaction Pattern of Mining Business in Forest Area

In action arena of managing of mining business in forest area, there are three main groups doing interaction, namely (i) government element (central and local governments), (ii) company element, and (iii) NGO and local community elements. Government roles as regulators (policy and regulation making), and as administrator (receiving of IPPKH proposal, evaluating and giving of technical consideration/recommendation, approval of license and working plan, receiving of reporting and legal payment, monitoring and controlling of license implementation). Company roles as an applicant who manages license proposal, and license holder (making of working plan, implementer of PPKH, payment to financial obligation, etc.). Whereas, NGO and local community roles as supervisor and inspector of mining business in forest area implementation in outside of government structure and the same time as impact taker from management of mining business in forest area.

An ideal interaction pattern is the above third parties could run their role and function in a trust, professional and accountable ways. However, it happens in the field, interaction between government and company very often are by-passed by individual/group interests that encourage illegal behaviours in form of KKN practices. Actually, the role of local NGO (Jaringan Tambang Kaltim) has a significant contribution to create the

awareness of community toward the impacts of mining business on environment and livelihood of local community. However, in fact the NGO role tends to be minimized by not involving in the decision or policy making process of mining in forest area.

Characteristics of mining resource as CPRs and high capital business and simple technology push many participants involved in the mining business either as broker (free rider) or rent seeker due to the capital as main requirement. Other characteristics are (1) the business run in certain period due to its mining resource as non renewable resources; and (2) this business involves opportunity cost with the concern of current utilization and scarifying of chance for future utilization [28]. These characteristics mainly drive to mining businessmen to speed up their return of investment through the increase of mining production in relatively short time period. This is really in line with the attribute of mining businessmen as economical creature with a paradigm of higher profit obtained with lower cost spent. Another characteristic of mining resources is the environmental impacts would run not only in during exploitation time, but also after exploitation time [28]. This coal business is temporary business and should be optimally managed as motor driving for sustainable development. In fact, this situation should encourage coal businessmen to apply conservation of coal management, but it has a reverse affect.

In the blowing up of KKN happened in mining business in forest area, there are ways of rent seeking works through: (i) certain interest group conduct lobby and other efforts that are possible to apply the rules for protecting and benefiting their business; (ii) government is looking for its legal benefits through applying an over protecting of certain goods such as high import tax with a reason for increasing efficiency of in country companies; (iii) certain government officers who have certain authority obtain benefit through bribery given by involved interest party in order to cancel the rules implementation because it has a big risk for its business [29]. Actually, KKN operandi modus in forest administration and management (forestry sector) in Indonesia has been identified [30, 31] as follows: (1) Managing of forest zone in national, provincial and district land use plan; (2) Bribery of state officer for obtaining license and smoothing license process; (3) Obtaining license without reliable technical review or recommendation or through data manipulation and its analysis; (4) Bribery to manipulate the measurement such as volume and diameter of harvested trees; (5) Bribery to avoid controlling and sanction toward concession contract; (6) Payments to controlling officers toward the broken of company obligation for sustainable forest management regulation; (7) Bribery to tolerance for logging practice outside in the legal logging block, outside in concession area boundary, logging in protection forest area; (8) Bribery for easily transporting of illegal woods and others.

Corruption in natural resource management has been neglected with following corruption modus, namely: (i) illegal encroachment and logging in conservation area, (ii) license manipulation, (iii) not paying of reclamation fund, (iv) using of broker for license processing, (v) using of *back-up* from law enforcement officers, and (vi) utilization of position as state executive for private company interest [29]. Evidence of KKN practices in East Kalimantan Province has been recorded in form of corruption crime actions in forestry sector as shown in Table 5.

Table 5: Corruption crime cases of forestry in East Kalimantan Province

No.	Name	Position	Case Description	State's loss (Rp)	Legal Process
1.	Suwarna Abdul Fatah	Guvernor of Kaltim	Issuance of wood utilization license (IPK) for oil palm estates with the main objective of wood orientation	346,82 billion	KPK, verdict of 4 years in prison
2.	Martias alias Kian Hwa	Owner of Surya Dumai grup	Receiver of IPK and the beneficial of policy issued by the Kaltim Governor (Suwarna AF)	346,82 billion	KPK, verdict of 18 months in prison. Replace-ment fund of Rp 346,82 billion
3.	Waskito Suryodi-broto	DG of Production Forest Develop-ment of Ministry of Forestry and Crop Estate	Together with Kaltim Governor, (Suwarna AF) in basic licensee giving	346,82 billion	KPK, verdict of 2.5 years
4.	Uuh Aliyudin	Head of Representative Office of Ministry of Forestry and Crop Estate	Together with Kaltim Guvernor, (Suwarna AF) in basic licensee giving (recommendation phase)	346,82 billion	KPK, verdict of 4 tahun
5.	Robian	Head of Forestry Service of East Kalimantan Province	Together with Kaltim Guvernor, (Suwarna AF) in basic licensee giving (license extension phase). No effort to claim PSDH and DR payments	346,82 billion	KPK, verdict of 4 years

Source: [32]

3.5. Outcome of mining in forest area

Outcomes are result caused by the existing interaction that triggered by action arena. This arena is influenced by exogenous variables. Outcomes give inputs to participants and situation and possibly transform the both passed the time. In span of time, outcomes possibly influence exogenous variables slowly. Therefore, in order to do an analysis, an analyst treats exogenous variables as fixed at least for analysis objective [6].

Outcomes are outcomes occurred as a cause from interaction pattern between participants and their roles in action arena. Outcomes assessed are outcomes from participant interaction pattern toward strengthening or weakening of policy implementation of mining business in forest area. The outcomes include: (i) low index of REDD+, land and forest governance, (ii) mining license governance is weak and KKN nuisance, (iii) state loss

due to postpone royalty and reclamation guarantee fund, (iv) non-reclamated mining holes asked died victims, and (v) state loss due to unrecorded coal production.

East Kalimantan has an index of REDD+, land and forest governance of 2.37. This index is lower compared to West Kalimantan (2.57) and Central Kalimantan (2.63). This index is far away from the minimal value, namely 3 and classified as bad category from the set range 0.00-5.00 [33]. This indicated that there is a strong and negative correlation between KKN and forestry governance index. The higher KKN level has the lower score of forestry governance index.

Weakness of mining license governance has indicated by the presence of non procedural mining in forest area up to 223 units with area of 774,519 ha and state loss of Rp. 16.3 trillion [22]. The mining license process in local government has KKN nuissance with the gratification of Rp. 4 billion in Samarinda City. The former of Head of Kutai Kartanegara has been accused by Police Resort Office for power abuse in mining license issuance of CV Kangkung Prima (KP). The license given to CV KP does not follow the legal procedure [34].

State loss due to the cancelation of royalty and reclamation guarantee payments are significantly high. The IUP holders in Kaltim have postponed royalty payment up to Rp 3.3 trillion. Data from Ministry of Mineral Resource and Energy underlines that 128 licenses of 1,443 IUP in Kaltim have not paid reclamation guarantee fund and 11 licenses have not reclaimed their ex-mining land [35]. The mining exploitation in Kaltim proved to reduce the environmental quality in its surrounding area, and polluted soil, water and air. In addition to that, the unreclaimed mining holes (voids) have requested victims of 14 children died [36]. State loss due to unrecorded coal production nationally in the 5-year period (2006-2010) achieved Rp. 12,423 billion per year. This loss is calculated through the differences between coal export and production data. However, it is very difficult to find the unrecorded coal production in Kaltim, although its share of coal production (2006-2010) is around 93% from national coal production.

4. Conclusions and Recommendations

Coal mining business in state forest zones are characterized by many participants including rent seekers and free riders as a result of simple technology used and high capital intensive, and the presence of CPRs. Action situation of license process of mining in forest area is indicated by weak control in the field and there is close correlation among participant members so that all IPPKH proposals never been rejected in form of technical consideration recommendation. This has been supported by the available information is more dominated by agent (mining company) than principal (government) so that the agent would easily direct government's policy in line with its interest. Another effort done by mining company to get IPPKH is dare to pay legal and illegal transaction costs as far as the company still has benefit beyond its paid costs. This creates strong interaction pattern of KKN between government officials and company management. This condition, in turn, would strengthen KKN values (low transparency and accountability) itself at community of its participants. The strong KKN values in certain community are triggered by situation structure of forest area use because participants in its action arena work together and in collaboration. Nevertheless, KKN practices happening in the action arena of forest area use is not only caused by physical condition. Other factors would also influence, such as gaps or

weakness of regulation aspect, lack of forest governance, and weak law enforcement. IAD framework has proved that mining resource characterising a CPR, community attribute of mining participants either agent or principal, and rule in use have influenced action from actors so that the forest area use for mining happens without considering sustainability of environment, social and economy of community at local level.

An impact of coal mining business in state forest area is the existence of mining holes that have not been reclaimed yet. These impacts should be discussed intensively between Ministry of Environment and Forestry and Ministry of Mineral Resources and Energy to find good and fair solution of the mining holes. Strong and consistent law enforcement are really required to give shock therapy to mining businessmen that left ex-mining land with abundant mining holes with argumentation of they have already paid the reclamation and ex-post mining guarantees funds.

Based on the findings, there is an urgent need for improving institutional arrangement of mining in state forest zone. This improvement can be done through: (1) manage and limit mining businessmen to avoid mining characteristic as CPRs. This can be done by applying the high and tough requirements in license process so that only mining businessmen with good capacity and experiences can obtain license as priority; (2) strengthening the policy values and government bureaucracy. This can be conducted by changing the bureaucracy values (power oriented and corrupt mentality) through fit and proper test in order to obtain credible, integrity and professional government officials in their own work field; (3) improvement of rule is use to motivate and encourage individual to behave in line with the goal of IPPKH. The improved rules will be able to create norm, value and sanction so that the rule would require the responsibility. The rule should effectively direct the participant interaction so that it opens effective and efficient coordination and communication rooms; (4) conduct effective control to avoid conflict of interest (CoI). This can be done through the establishment of controlling system with the determining of strict and right authority and improving of participation relationship. This control would prevent the CoI among the participants; and (5) fulfill the balanced information in order to prevent asymmetric information. This can be done through government (principal)’s initiative to provide more information on its responsible field than given by the mining businessmen (agent). It improves and establishes comprehensive and integrated information system that can be easily accessed by public.

References

[1]. D.R. Nurrochmat, M.F.H., D. Suhardjito, A. Budiaman, A. Hadianto, M. Ekayanti, Sudarmalik, H. Purwangsa, Mustaghfirin, E.K. Ryandi. Ekonomi Politik Kehutanan: Mengurai Mitos dan Fakta Pengelolaan Hutan, Jakarta, Indonesia: INDEF, 2012, pp.53-80.

[2]. E.Suwarno. Analisis Kelembagaan Proses Operasionalisasi: Studi Kasus KPHP Tasik Besar Serkap di Provinsi Riau. PhD Thesis. Sekolah Pascasarjana, Bogor Agriculture University. 2014.

[3]. H.Kartodihardjo and H. Jhamtani. Politik Lingkungan dan Kekuasaan di Indonesia, Jakarta, Indonesia: Equinox Publishing, 2006, pp. 53-70.

[4]. J. Smith, K.O., Subarudi, I. Suramenggala."Illegal logging, collusive corruption and fragmented governments in Kalimantan, Indonesia". International Forestry Review 2003. **5** (3): p. 293-302.

[5]. KPK. Gerakan Nasional Penyelamatan Sumber Daya Alam: Sektor Kelautan, Pertambangan, Kehutanan

dan Perkebunan, Jakarta, Indonesia: Komisi Pemberantasan Korupsi, 2014, pp. 35-51.

[6]. E.Ostrom. Understanding Institutional Diversity, Princenton, USA: Princenton University Press, 2005, pp. 35-46.

[7]. M.A.Rudd."An institutional framework for designing and monitoring ecosystem based fisheries management policy experiments". Ecological Economic 2004. **48**: p. 109-124.

[8]. B.Bungin. Content analysis dan focus group discussion dalam penelitian sosial di dalam metodologi penelitian kualitatif: aktualisasi metodologis ke arah ragam varian kontemporer, Jakarta, Indonesia: PT. Raja Grafindo Perkasa, 2001, pp. 17-31.

[9]. H.Nawawi and M.M.Hadari. Instrumen Penelitian Bidang Sosial, Yogyakarta, Indonesia: Gadjah Mada University Press, 2006, pp. 66-72.

[10]. Dirjen-Minerba. Statistik Batubara Indonesia 2012, Jakarta, Indonesia: Direktorat Jenderal Mineral dan Batubara, Kementerian Energi dan Sumber daya Mineral, 2013, pp. 5-10.

[11]. Distamben-Kaltim. Laporan Kegiatan Pertambangan Kalimantan Timur 2012. 2013, Samarinda, Indonesia: Dinas Pertambangan Provinsi Kalimantan Timur, 2013, pp. 1-15.

[12]. Kemenhut. Eksekutif Data Strategis Kehutanan 2012. 2012, Jakarta: Kementerian Kehutanan.

[13]. N.Raheem."Using the institutional analysis and development (IAD) framework to analyze the acequias of El Río de las Gallinas, New Mexico". The Social Science Journal 2014. **xxx(2014)xxx**: p. 1-8.

[14]. A.Yakin. Ekonomi Sumberdaya dan Lingkungan: Teori dan Kebijakan Pembangunan Berkelanjutan, Jakarta, Indonesia: Penerbit Akademika Presindo, 1997, pp. 27-65.

[15]. S.Ritung. Identifikasi Karakteristik Potensi Lahan Terlantar dan Bekas Tambang di Kaltim seluas 3 juta ha, Skala 1:250.000 untuk Mendukung Ketahanan Pangan dan Pengembangan Biofuel, Bogor, Indonesia: Balai Besar Penelitian dan Pengembangan Sumber Daya Lahan Pertanian, 2010, pp. 13-36.

[16]. H.Kartodihardjo. "Hegemoni Ilmu Pengetahuan". in Kembali Ke Jalan Lurus: Kritik Penggunaan Ilmu dan Praktek Kehutanan Indonesia, H. Kartodihardjo, Editor, FORCI Development, Fakultas Kehutanan, IPB, 2012, pp. 1-9.: Bogor, Indonesia.

[17]. E.Ostrom and C. Hess. "A framework for analyzing the knowledge commons". in Understanding Knowledge as a common: from theory to practice, C. Hess and E. Ostrom, Editors, MIT Press, 2006, pp. 41-81.

[18]. E.Prasojo.Revolusi Mental Birokrasi.Kompas.Jakarta, Indonesia.(27 Oktober 2015).pp.7.

[19]. S.Warsito. "Kesalahan Makna, Kesalahan Kebijakan: Review Konsep Kelestarian Tegakan Hutan, Dana Reboisasi dan PNBP dari Penggunaan Kawasan Hutan". in Kembali Ke Jalan Lurus: Kritik Penggunaan Ilmu dan Praktek Kehutanan Indonesia, H. Kartodihardjo, Editor, FORCI Development, Fakultas Kehutanan, IPB, 2012, pp. 467-498.: Bogor, Indonesia.

[20]. M.Zubayr. Implementasi Kebijakan Penggunaan Kawasan Hutan Untuk Pertambangan: Perspektif Hubungan Principal-Agent. PhD Thesis. Sekolah Pascasarjana, Bogor Agriculture Univeristy. 2014.

[21]. Ditjen-Planologi-Kehutanan. Data dan Informasi Penggunaan Kawasan Hutan 2013, Jakarta, Indonesia: Direktorat Penggunaan Kawasan Hutan, Direktorat Jenderal Planologi Kehutanan, Kementerian Kehutanan, 2013. pp. 55-61.

[22]. Ditjen-PHKA. Progress Kegiatan PHKA Dalam Rangka Penurunan Emisi di Sektor Kehutanan. in Prosiding Workshop Identifikasi Kegiatan Sektor Kehutanan yang Berpotensi dalam Penurunan Emisi,

Penyerapan dan Simpanan Karbon. 2012. Bogor, Indonesia: Pusat Penelitian dan Pengembangan Perubahan Iklim dan Kebijakan.

[23]. R.D.Susanto.Pertambangan di Kaltim: Tambang Banyak Masalah.Kompas.Jakarta, Indonesia.(May 14, 2014).pp.22.

[24]. Kemenhut. Eksekutif Data Strategis Kehutanan 2012, Jakarta, Indonesia: Kementerian Kehutanan, 2012, pp. 5-11.

[25]. Tempo, Matahari di Atas Manggala, in Majalah Berita Mingguan Tempo. 2011: Jakarta, Indonesia. p. 13-35.

[26]. I.Yasir, Teknik Reklamasi Lahan Hutan Bekas Tambang di PT. Singlurus Pratama, Balai Penelitian Teknologi Konservasi Sumber Daya Hutan, 2015, pp.12- 18.: Balikpapan, Indonesia.

[27]. A.K.Jain, Corruption: Theory, Evidence and Policy. 2011, CESifo DICE Report2/2011. Available at: http://ideas.repec.org/a/ce/ifodic/v9y2011i2p3-9.html. [Nov. 12, 2015].

[28]. S.Soedomo. Obrolan Nusantara: Menyambut Indonesia Baru, Jakarta, Indonesia: Penerbit Firdaus, 2012, pp. 207-230.

[29]. R.Darmadi.Alamak!!! Korupsi Sektor Sumber Daya Alam Menggila. Internet: www. Mongobay.co.id/2014/12/15/alamak-korupsi-sektor-sumber-daya-alam-menggila.Dec.15, 2014. [Dec. 15, 2014]. 2014.

[30]. Tranparency-International-Indonesia.Forest Governance Integrity Report Indonesia. Internet: http://www.ti.or.id/index.php/ publication/2011/11/23/forest-governance-integrity report-Indonesia. Nov. 23, 2011. [Nov. 12, 2015].

[31]. Greenomic. Pola Praktik Korupsi dalam Perizinan Konsesi Hutan: Bahasan Literatur terhadap Praktik-Praktik korupsi dalam mekanisme Perizinan Konsesi Hutan, Jakarta, Indonesia: Greenomic Kertas Kerja No. 03, 2004, pp. 15-24.

[32]. ICW.Praktik mafia Kehutanan Tak Lepas dari Peran Aparat. Internet: http://www.hukumonline.com/berita/baca/lt4bfe31dd46d66/ praktik-mafia-kehutanan-tak-lepas-dari-peran-aparat. Dec. 15,2010. [Nov. 12,2014]. 2014.

[33]. UNDP. Indeks Tata Kelola Hutan, Lahan dan REDD+ 2012 di Indonesia, Jakarta, Indonesia: United National Development Program Indonesia, 2012, pp. 13-23.

[34]. Koalisi-Anti-Mafia-Hutan.Korupsi di Sektor Kehutanan Mulai Diungkap.

[35]. M.Johansyah.Penyalahgunaan Tambang: KPK Didesak Bertindak.Kompas.Jakarta, Indonesia.(March 15, 2015).pp.22.

[36]. H.Siregar.Sumber Energi: Komitmen Menghentikan Pemanfaatan Energi Kotor.Kompas.Jakarta, Indonesia.(August 19, 2015).pp.13.