# Assesing The Impact Of Tenure Conflict In The Upstream Oil And Gas Industry' Socio-Economic Development: The Case Of Indonesia

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Abstract: This study aimed to analyze the chronology of tenure issues in the upstream oil and gas industry and the potential socio-economic impacts of the upstream oil and gas tenure conflict in Riau, Indonesia. Descriptive analysis in the form of tabulations and was used to analyze secondary data such as regulation of the state-owned oil and gas assets status, land / tenure in Indonesia, chronology and procedures for land acquisition and forest area planning. The findings of this study showed that chronologically PT CPI's operations have been operating since 1924 in Riau and have experienced various forest regulatory regimes. PT CPI always complies with conflicting state regulations. The potential direct impact of stopping oil and gas activities in the Convertible Production Forest and Production Forest on production is by reducing the national oil production by 65 thousand barrels / day and approximately 4,800 employees that cannot be absorbed by the upstream oil and gas industry.

*Key Words:* Socio-Economic Impact, Tenure Conflict, Upstream Oil, Gas Industry

## 1. Introduction

Land is one of the earth systems along with other earth systems, namely water and the atmosphere, which is the core of ecosystem function, change, and stability. Land has a unique position in environmental matters, is an environmental asset and forms an essential foundation for humanity (Idjudin, 2011). In developing countries, land is the principle resource for anumber ofindustries and sectors (Riggs et al., 2016). Land has many functions for human life: (1) Ecosystem services; (2) Landscape functions; (3) Land use functions (Batista, n.d.; Schößer, Helming, & Wiggering, 2010). Land use might have several economic, environmental and societal functions such as provision of wood for forestry and/or for renewable energy, have a recreational function, be part of a cultural landscape, regulate the supply of air, water and minerals, support biodiversity in the form of landscape cohesion and maintain ecosystem processes (Perez-Soba et al. 2008).

Land degradation, deserti-fication, biodiversity loss, habitat destruction and species transfer are consequences of converting natural land cov-ers (Meyer and Turner 1995). The relationship between land cover and land use change and its causative factors is complex and dynamic. It is manipulated by both natural and socio-economic factors. Some studies sug-gest that demographic dynamics contribute more than any other processes to land cover changes (Wubie, Assen, & Nicolau, 2016). Others suggest the superiority of economic factors to be the major contributing factor. Some socio-economic factors of land cover change include poverty, tenure insecurity, and availabil-ity of market and credit facilities (Campbell et al. 2005). These factors have become apparent between and within individual regions and countries. Thus the diversity of causative factors of land use change must be considered within the regional variations (Lambin and Geist 2006).

Land use is the human modification of the Earth's surface, which has strongly affectedand will increasingly shape planetary functions (Steffen, Crutzen, & McNeill,2007). Looming sustainability problems such as climate change, increasing demand for food,accelerating urbanization, the ongoing biodiversity crisis and widespread changes in thestructure and functioning of ecosystems with implications for the services they provide allindicate that research at the interface of humans and the environment will continue to beof utmost societal relevance (Verburg, Erb, Mertz, & Espindola,2013). Land use is keyfor un derstanding and potentially solving these sustainability challenges, and land-usescience therefore remains a critical topic for academic study as it contributes to betterunderstanding human–environment interactions across different spatial and temporalscales and to outlining pathways towards sustainable resource use.Land-use science, also called land-change science (Gutman et al.,2005; Turner,Lambin, & Reenberg,2007), and land-system science (Reenberg,2009; Verburg, Erb,et al.,2013), is the study of changes in land at the interface of social and environmentalsystems and their implications for the global environment. This field has emerged as acentral component of sustainability science. As such, land-use science encompasses greatmethodological diversity and inherently presents the opportunity to foster and enhanceinterdisciplinarity (Aspinall,2006). The JLUS has thus featured scholarship stemmingfrom geography, economics, sociology, forestry, environmental sciences and other disciplines. Aspinall (2006) demonstrated the growing importance of land use for scientificinquiry by highlighting the mounting academic interest in land use, as measured byscholarly publication. We reaffirm this trend, acknowledging the increasing number ofscholars who are trained in land-use science and update his original figure to show thatinstances of the search term'land use'in scientific publications continue to grow rapidly

According to Barlowe (1986) socio-economic factors are factors that cause changes in land use. Barlowe said that the economic location of land (distance from business activities) is the main factor causing changes in land use in addition to social factors such as population and distance from settlements. Barlowe's (1986) findings are also supported by Dimyati *et al*. (2007) and Dariono *et al.* (2018) that also show the business activities that use large areas of land, such as industrial plantations (HTI) and plantations also that have an influence on land use change.

McNeil *et al.* (1998) also state something similar to Barlowe (1985) that land use change driving factors are politic, economic, demographic and cultural. The political aspect is the existence of policies carried out by decision makers. Anjulian and Nurman (2017) found that planning policy factors play an important role in controlling land use change as expressed by McNeil et al. (1998).

Land tenure in Indonesia is regulated by a complex combination of traditional, formal and informal arrangements. Legal ambiguity over land and natural resources has resulted in tenure insecurity, impacting livelihoods and perpetuating conflict (Riggs et al., 2016). Based on the latest dynamics of spatial planning in Riau Province, this spatial planning has not fully supported the sustainability of the upstream oil and gas industry. The Riau Province Spatial Plan (RTRW) has been compiled since 2000 and stipulated in early 2018 still leaves tenure issues related to the upstream oil and gas industry. In principle, all areas of oil and gas activities should be listed in the RTRW Map but currently not all activities Oil and gas listed in the RTRW Map. The RTRW map is a derivative of SK 878/2014 in conjunction with SK

903/2016 concerning spatial planning for the forest area of Riau Province.

Beside ecological aspects, a policy must be carefully considered and the implications from the social and economic aspects are taken into account. Dye (2005) suggests that there are several things that can be learned in the policy analysis process, namely description, causes and concequences. A series of policies will inevitably have impacts that were not predictable at first. The impact of the policy can be seen from the presence or absence of changes in the attitude of the community after the policy is implemented or it can also be seen from changes in community conditions. Furthermore Hidayat (2012) states that economic development is basically a community effort in developing economic activities and increasing productivity. Economic growth is obtained from the increase in all economic capital which can include infrastructure, human capital and other social capital.

In this study, the economic aspect is seen from the production value of the sustainability of oil and gas production as well as the indirect impact of production that generates income for the state, while from the social aspect it is seen from the potential sustainability of the oil and gas workforce. Based on these problems, this study aimed to analyze the socio-economic impact of the upstream oil and gas tenure conflict in Riau, Indonesia.

## 2. Literature Review

Similar research has been carried out in various countries, especially in oil-producing countries. The majority of the studies carried out have the same theme, regarding the socio-economic impacts of the oil and gas industry. although it has the same theme, each research has its own characteristics and main focus.

Research conducted by Josephat Koli Nanok and Christopher Ouma Onyango in Kenya regarding "A Socio-Economic and Environmental Analysis of the Effects of Oil Exploration on the Local Community in Lokichar, Turkana County, Kenya" explain that this study was to analyze the effects of oil exploration on the social fabrics, the economic variables and the environmental factors in the oil exploration areas in Turkana County. The results of the study showed that despite the ongoing oil exploration in the county, the locals have not adequately benefitted from job opportunities created by the exploration companies. In addition, the cost of land has also increased. However, the study shows that despite the influx of migrants the trade volumes within oil exploration regions has not substantially increased. Further, oil exploration activities have adverse negative effects on the environment, health and education of the locals (County, 2017).

Research by Olusiyi Ipingbemi (2008) who research about "Socio-economic implications and environmental effects of oil spillage insome communities in the Niger delta" show that the presence and concentration of heavymetals in the soil and the total hydrocarbon content (THC) of water. There was a strongrelationship between the volume of oil spilled and the area coverage. Laboratorysoil analysis from sampled communities showed a higher concentration of heavymetals (chromium, lead, arsenic, etc.) above the World Health Organization (WHO) permissible levels as well as the figure for controlled site. This has grave implications on thesoil, water and socio-economic activities of the people. It is, therefore, important that environmental laws should be strictly adhered to. Compensation should beadequately and promptly paid to the communities, and remedial action should bespeedily undertaken whenever there are spills. Finally, the oil companies mustinvolve the communities in the

maintenance and monitoring of pipelines with theultimate goal of improving the quality of life of members of rural communities (Ipingbemi, 2009).

Research conducted by Josephat Abdul Rohman Zaki in Indonesia regarding Indonesia about "Social Economic Impact Of Urip Banyu Oil And Gas Mining, Bojonegoro Distric" show that the socio-economic impacts include livelihoods, changes in social values and the role of pemeruntah Bojonegoro with amining project in Banyu Urip. The results showed, the transition livelihoods Gayam the previously dominant agricultural sectorto switch to the mining sector. Rising income level sand lead toa more prosperous, multiplier effect of mining sector wage increases have affected the non-mining sectors Role of Government Bojonegoro successful in providing the mining sector policies that support the community.

## 3. Methodologhy

This research uses descriptive qualitative research that leads to the disclosure of a problem or situation as it is and to reveal the facts. The focus of this study describes the existing regulatory tools regarding tenure issues in the upstream oil and gas industry with several adjustments that must be made before this policy can be implemented. At this stage the economic impact is seen in the economic potential value of the sustainability of oil and gas production as well as the financing from the results of the policy, and the potential social impact of the sustainability of the oil and gas workforce. Primary data is obtained from observations and documentation, while secondary data used comes from literature studies on regulations governing the status of State Property of Oil and Gas; Regulations governing land / tenure matters in Indonesia; Chronology and procedures for land acquisition that have been carried out by PT CPI; and regulations governing forest area spatial planning. The data analysis technique used was the interactive data analysis of the Miles and Huberman models, namely data reduction, data presentation and conclusion drawing / verification. The following shows a picture of the "Analysis Interactive" model.

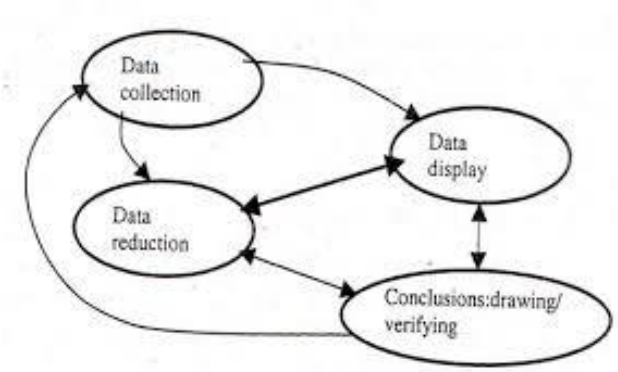


**Figure 1. Analysis Interactive Model from Miles & Huberman (1994)**

Based on the picture above, in general data analysis in this study was carried out through the following stages; (1) recording all findings of phenomena in the field through observation, interviews and documentation; (2) reviewing records of observations, interviews and documentation studies, and separating data deemed important and unimportant, this work is repeated to check for possible classification errors; (3) describe the classified data by taking into account the focus and objectives of the study; and (4) make a final analysis in the form of a research report.

# 4. Results And Discussion

## 4.1 Results

From the long operational journey that PT CPI has gone through, the rights held by CPI are in the form of a Governor's Principle Permit or Proof of Exemption (can also be completed with SKT / SKGR of the Previous Owner). In accordance with the mandate of KMK 26 / KMK.26 / 2015 and PP No. 24/1997, then BMN which is managed by PT CPI needs to be upgraded to a certificate status. Land certificates are the strongest and most legal proof of rights in the eyes of the law in Indonesia in accordance with Government Regulation PP No. 24/1997 on Land Registration. In Indonesia, land certificates are issued by the National Land Agency. The basis of rights that have not been in the form of a certificate that has been obtained by PT CPI is the initial evidence that supports the history of land and physical control in accordance with Law Number 5 of 1960 concerning Basic Agrarian Regulations.

On the other hand, the Ministry of Forestry has the authority to determine forest areas. Forest areas in Indonesia are areas that have been determined and managed by the government through the Ministry of Forestry. Forest areas cannot legally be owned and the regulation of use / activities in forest areas refers to Law no. 41 of 1999 concerning Forestry. According to these regulations, in general, forests are divided into 3 types, namely Conservation Forest, Protection Forest and Production Forest. Conservation Forest may not be entered at all except for study purposes, while Production and Conservation Forest can be used but cannot be owned by a borrow-and-use mechanism at a certain time. In more detail, the rules for the process of borrowing and using forest areas refer to the rules contained in the Minister of Forestry Regulation Number: P.43 / Menhut-II / 2008 concerning Guidelines for Borrowing and Using Forest Areas.

For Riau Province itself, the most recent forest area designation after the 1986 THGK was through PermenLHK 878/2014 in conjunction with PermenLHK 903/2016. However, forest regulation that occurs, including PermenLHK 878/2014 in conjunction with PermenLHK 903/2016 seems to be forced, because the government has determined forest areas where some of the locations designated as forest are in fact no longer forested in the field. The stipulation of SK 878/2014 from the Ministry of Forestry which emerged later than the chevron operations, resulted in part (25%) of Chevron's Upstream Oil and Gas activity area in the status of Protected Forest Areas, Production and Conservation and had an impact on PT CPI's activities in production forest areas and This conservation can be stopped at any time (because it violates regulations) and has the potential to get prosecution, including from third parties. Chronologically, PT CPI's operations have been operating since 1924 in Riau and have gone through various forest regulatory regimes and PT CPI has always tried to comply with these conflicting state regulations (Figure 2). In addition, in every step of the way, PT CPI requires legal certainty in its operations.

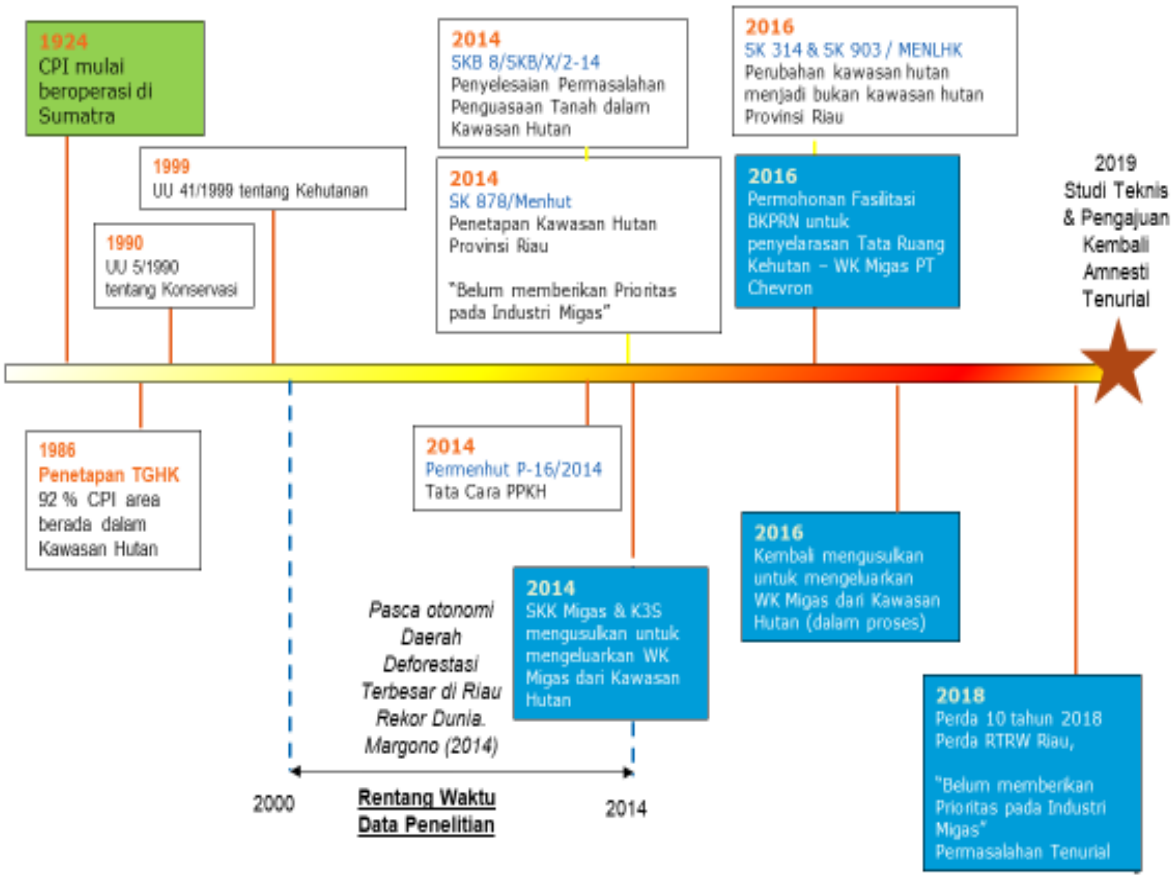


**Figure 2. Chronology of Overlapping BMN Land with Forest Areas**

The Rokan Block as the main contributor to 40% of national oil, of course, also plays an important role in fulfilling the national oil demand. The upstream oil and gas sector not only has a direct impact on national oil, but also has a multiplier effect on the economy as well as on social issues. With the overlap of PT CPI's operational areas with forest areas (with Permen KHK 878/2014 in conjunction with Permen KHK 903/2014), of course this also threatens the contribution that can be made to national oil needs, the potential revenue that can be obtained by the state and working workers. in the forest area.

**Table1 : Potential of Socio-Economic Impacts of Tenure Conflicts in Upstream Oil and Gas Industry**

| Overlappingwith Forest Area | Number of Wells | Size (Ha) | Economic Impact | | Social Impact |
|---|---|---|---|---|---|
| | | | Daily Production Impact(BOPD) | State Revenue Impact (Billion/Day) | Manpower Impact (person) |
| HL | 30 | 117.42 | 1,424.25 | 1.45 | 128 |
| HP | 384 | 1,720.64 | 20,745.07 | 21.06 | 1,862 |
| HPK | 876 | 4,286.74 | 33,507.66 | 34.01 | 3,007 |
| HPT | 145 | 1,442.53 | 6,839.72 | 6.94 | 614 |
| KSA/KPA | 27 | 453.23 | 1,016.12 | 1.03 | 92 |
| **Total** | **1462** | **8,020.56** | **63,532.82** | **64.49** | **5,703** |

Source : PT CPI Year 2018

## 5. Discussion

Land tenure in Indonesia is regulated by a complex combination of traditional, formal and informal arrangements. Legal ambiguity over land and natural resources has resulted in tenure insecurity, impacting livelihoods and perpetuating conflict (Riggs et al., 2016). Land tenure represents the broad and complex relationship between people and land. Control of, use of, and access to land are essential components of peoples' livelihoods, providing both the capacity and assets needed to ensure food and income security. Land tenure reform is the subject of heated public debate in Indonesia, particularly by activists promoting conservation and customary rights (Bakker and Moniaga, 2010; Fitzpatrick, 2005).

The highly pluralistic land tenure system in Indonesia reflects the diverse social and political cultures found amongst the country's 6000–7000 inhabited islands (Daws and Fujita, 1999). Trade, migration and Dutch colonisation have influenced the evolution of modern land tenure from traditional, informal and formal arrangements. A complex and ambiguous agrarian legal system now exists in Indonesia, consisting of both customary (Adat) law and statutory law. In the 1945 Indonesian Constitution, Article 33 declares that the State has control over all earth, water and airspace (Nurjaya, 2011). The present land tenure situation has its legal foundations in the Basic Agrarian Law (BAL) of 1960 and the Basic Forestry Law (BFL) of 1967, replaced in 1999 by the Forestry Law (No. 41/1999). The BAL was established to create a framework for managing land and natural resources in Indonesia that included both modern law and customary tenure systems (Bakker and Moniaga, 2010). The 1999 Forestry Law stipulates that the State has control over forest areas through the Ministry of Forestry (Article 4). In 2014, the Ministry of Forestry merged with the Ministry of Environment, so the management of forests in Indonesia is now controlled by the Ministry of Environment and Forestry (Murdiyarso, 2014). We refer to the Ministry of Forestry in sections of this paper dealing with situations prior to recent changes. In addition to the BAL and 1999 Forestry Law, it is estimated that there are a further 632 overlapping agrarian regulations in Indonesia (Nurdin, 2014). Laws exist at national, regional and local levels and numerous regulations impact on the control and allocation of land and natural resources (Riggs et al., 2016).

Land tenure reform in Indonesia In 2013, the Indonesian Constitutional Court ruled for the release of customary forestfromitsdesignationas State forest(Constitutional Court Decision No. 35/PUU-X/2012) (Hauser-Schaublin, ¨ 2013). The ruling stipulated that customary forests cannot be designatedas State forests whenthe customary community is recognised by a district regulation (Toha and Collier, 2015). In a similar case in 2012, the Constitutional Court ruled that Article 1(3) of the 1999 Forestry Law could no longer use the term 'designated' to define the Forest Zone (Constitutional Court Case No. 45/PUU-IX/2011) (Wells et al., 2012). This decision, referred to as MK45, is considered to be non-retrospective; implying that Forest Zone designated or gazetted prior to the ruling will remain unchanged. However, MK45 creates a high degree of uncertainty over the remaining 116.5 million hectares of land that has not been formally gazetted in Indonesia (Wells et al., 2012). Following both of these decisions is the 2014 Joint Regulation on the Acquisition Procedures for Land Located in Forestry Areas (No. 79, PB.3/Menhut-11/2014, 17/PRT/M/2014) and the Ministerial Regulation No. 9/2015 of the Minister of Agrarian Affairs and Spatial Planning and

Head of National Land Agency on Procedures for the Determination of Communal Rights on Customary Land and the Land of Communities in Spatial Regions. These regulations outline the procedure for applicants to claim rights over land located in forest areas (Riggs et al., 2016).

### 5.1 Chronology of tenure Issues in the Upstream of Oil and Gas Industry in the Rokan Block

The long operational journey of PT CPI, the rights owned by the CPI are in the form of a Governor's Principle Permit or Proof of Exemption (can also be completed with SKT / SKGR of the Previous Owner). In accordance with the mandate of KMK 26 / KMK.26 / 2015 and PP No. 24/1997, then BMN that is now managed by PT CPI needs to be upgraded to a certificate status. Land certificates are the strongest and most legal proof of rights in Indonesia in accordance with Government Regulation PP No. 24/1997 on Land Registration. In Indonesia, land certificate is issued by the National Land Agency. PT CPI has not yet obtained a certificate of rights as preliminary evidence supporting land maintenance and physical control in accordance with Law Number 5 of 1960 on Basic Agrarian Regulations.

On the other hand, the Ministry of Forestry has the authority to determine forest areas. Forest areas in Indonesia are areas that have been determined and managed by the government through the Ministry of Forestry. Forest areas cannot legally be owned and the regulation of use / activities in forest areas refers to Law no. 41 of 1999 concerning Forestry. According to these regulations, in general, forests are divided into 3 types, namely Conservation Forest, Protection Forest and Production Forest. Conservation Forest may not be entered at all except for study purposes, while Production and Conservation Forest can be used but cannot be owned under a lease-and-use mechanism at certain times. In more detail, the rules for the process of borrowing and using forest areas refer to the rules contained in the Minister of Forestry Regulation Number: P.43 / Menhut-II / 2008 concerning Guidelines for Borrowing and Use of Forest Areas.

The contradictory regulation is due to lack of synergy between agencies at the central level. Since TGHK 1986 the designation of forest areas in Riau has not been socialized well. There was also reluctance from agencies outside the Ministry of Forestry to comply the designation of forest areas. It can be proven by the practice of granting Principle Licenses, whereby Governors can still issue operating permits in forest areas without synergizing with the Ministry of Forestry. In addition, at a lower level, the regent, subdistrict head and the liberation committee do not pay attention to the forest area liberation.

For Riau Province, the most recent determination of forest area after THGK 1986 is in the PermenLHK 878/2014 in conjunction with PermenLHK 903/2016. However, forest regulation occured including PermenLHK 878/2014 in conjunction with PermenLHK 903/2016 seems to be forced, because the government has determined forest areas where some of the locations designated as forest are in fact no longer forested in the field. The stipulation of SK 878/2014 from the Ministry of Forestry that emerged later than the chevron operations, resulted in part (25%) of Chevron's Upstream Oil and Gas activity area in the status of Protected Forest, Production and Conservation Areas and had an impact on PT CPI's activities in production forest areas and The conservation can be stopped any time (because it violates regulations) and has the potential to get prosecution, including from third parties.

Conflicting regulations made by the government in the case of the Upstream Oil and Gas Industry (Law No. 22 of 2001), State Property Originating from KKKS (PP No. 6 of 2006, PMK 135 / PMK.06 / 2009 jo 165 / PMK.06 / 2010), State Property Certification in the form of Land (KMK 26 / KMK.26 / 2015 and PP No. 24/1997) and Forest Areas (Law No. 41 of 1999, PermenKHK 878/2014 in conjunction with PermenKHK 903/2014) PT CPI's operations in the Forest Zone have an unclear status. Upstream Oil and Gas Industries located in Forest Areas cannot possibly be included in Spatial Planning as Mining Areas because Law No. 26 of 2007 on Spatial Planning demands synergy of Spatial Planning with Forest Areas.

These conflicting regulations are caused by a lack of synergy between agencies at the central level. Since TGHK 1986 the designation of forest areas in Riau was not well socialized. There was also reluctance from agencies outside the Ministry of Forestry to comply with the designation of these forest areas. This can be proven by the practice of granting Principle Licenses, whereby the Governor can still issue operating permits in forest areas without synergizing with the Ministry of Forestry. In addition, at a lower level, the Regent, sub-district head and the liberation committee did not pay attention to the forest area when the release was carried out.

On the other hand, institutionally, these contradictory regulations, all parties at the technical ministry or provincial level feel that they have a stake in managing and regulating, because of the sectoral ego of these institutions. In this case, clear direction is certainly needed by PT CPI as the operator of the Upstream Oil and Gas Industry. Escalation to a higher level such as the Coordinating Ministry can be taken to get direction and if it is necessary, new rules will resolve this case.

### 5.2 Potential of Socio-Economic Impacts of Upstream Oil and Gas Industry Tenure Conflicts

The Rokan Block as the main contributor of 40% of national oil, of course, also plays an important role in fulfilling the national oil demand. The upstream oil and gas sector do not only have a direct effect on national oil, but also has a multiplier effect on the economy as well as on the social side. With the overlap of PT CPI's operational areas with forest areas (with Permen KHK 878/2014 in conjunction with Permen KHK 903/2014), of course this also threatens the contribution that can be made to national oil needs, the potential revenue that can be obtained by the state and manpower in the forest area.

There are about 63,532 Barrels Oil Per Day (BOPD) produced from 1,462 wells in an overlapping area of 8,020 ha that are threatened with stopping the production. In fact, PT CPI's have been operating for a long time in the forest area. Forest areas in Riau contribute at least 23% of PT CPI's total production. In addition, there are other oil sources located in conservation areas that cannot be extracted at all because there are no regulations that allow it. In addition, the wells in the forest area are threatened that PT CPI will not be able to regularly maintain them when they are forcibly stopped, thus endangering the environment. production of around 33,500 BPOD is under threat.

With the average oil price range of $ 70 in 2018-2019, the potential loss of revenue from oil and gas production of 63,532.82 is equivalent to $ 4,447,297.4 or the equivalent of 64.49 billion per day (calculated at an exchange rate of $ 1 = 14,500). Of course this will be very significant for Indonesia and also for Riau Province, where 50% of its APBD comes from the oil and gas sector (Tempo, 2016). The Oil and Gas Industry in the Rokan Block contributed 66% of the total Non-

Tax State Revenue (PNBP) and 30% of the APBD Portion in 2017 (Kompas, 2017). The largest contributor to state revenue from oil and gas production in forest areas is HPK (Conversion Production Forest) and HP (Production Forest) areas, which produce 34 billion and 21 billion per day, respectively.

Another social impact is the reduced manpower that can be absorbed by the Upstream Oil and Gas Industry. There are 5,703 employees of the Rokan Block Upstream Oil and Gas Industry who work in forest areas. With the threat of stopping production in forest areas it will affect a number of these employees. The biggest impact that will be felt is that as many as 4,800 employees cannot be absorbed by the upstream oil and gas industry, the termination of oil and gas activities in the HPK (Convertible Production Forest) and HP (Production Forest) areas.

## 6. Conclusion

The contradictory regulations made by the government in the case of the Upstream Oil and Gas Industry (Law No. 22 of 2001), State Property Originating from KKKS (PP No. 6 of 2006, PMK 135 / PMK.06 / 2009 jo 165 / PMK.06 / 2010), State Property Certification in the form of Land (KMK 26 / KMK.26 / 2015 and PP No. 24/1997) and Forest Areas (Law No. 41 of 1999, PermenKHK 878/2014 in conjunction with PermenKHK 903/2014) make the unclear status of PT CPI operation in the Forest Zone . With an average 2018-2019 oil price range of $ 70, the potential for loss of income from oil and gas production is 64.49 billion per day. Of course this will be very significant for Indonesia and also for Riau Province, where 50% of its APBD comes from the oil and gas sector (Tempo, 2016). The Oil and Gas Industry in the Rokan Block contributed 66% of the total Non-Tax State Revenue (PNBP) and 30% of the Regional Budget in 2017. The biggest impact that will be felt is that more than 4,800 employees that cannot be absorbed by the upstream oil and gas industry by stopping oil and gas activities in the Forest area. Conversion Production and Production Forest.

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