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Tenure Amnesty for the Upstream Oil and Gas Industry in the Forest Area

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Abstract

The overlap of the operational area of the upstream oil and gas industry with forest areas in the Rokan Block as the main contributor to 40 percent of the national oil, threatens the contribution that can be given to national oil needs. This study aimed to analyze the implementation of tenure amnesty to resolve tenurial conflicts in the upstream oil and gas and forest areas. Descriptive analysis was carried out by using the IRAC reasoning scheme, namely issue (I), rule of law (R), analysis (A), and conclusion (C) as forming policy analysis. The findings of this study showed that there were two solutions to resolve tenure conflicts in r upstream oil and gas industrial land and forest areas, namely IPPKH (Borrowing and Use of Forest Areas Permits) and tenure amnesty. Tenure amnesty is a better mechanism than IPPKH both socially, economically, and institutionally. The presence of the upstream oil and gas industry through tenure amnesty in forest areas can improve the performance of ecosystem management through harmonization of operations that is followed up by a collaborative program.

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1 Introduction

Global climate change and biodiversity loss are two main ecological problems facing the world nowadays (Skogen *et al*., 2018; Soler Luque & Kostecka, 2018; Kim & Hall, 2020). In the last 100 years, there has been an increase in gas emissions that is one of the causes of global climate change. About 25% of which is caused by land use change (Le Quéré *et al.*, 2018; Le Quéré *et al.*, 2019). In a tropical country like Indonesia that has quite extensive forests, land-use change needs to be controlled because it has a direct impact on habitat loss and also the extinction of several species (Margono *et al.*, 2014; Murdiyarso *et al*., 2015; Gaveau *et al.*, 2016).

Land-use change is commonly occurring as a form of human effort to meet their needs, but this phenomenon needs to be controlled so as not to cause a decrease in environmental quality. Weak governance, especially in land use planning and implementation causes land-use change to become uncontrollable, resulting in negative impacts on environmental quality and ecosystem services (Zulkarnain, 2018). Careful planning, control, and evaluation of land use are needed to achieve sustainable development. Haines-Young, (2009), Tittensor et al. (2014) states that controlling the transformation of land cover and land use is the key to prevent the causes of biodiversity loss in an ecosystem.

Riau province experiences land-use change. Riau contributes 42% of the total of 7.5 million hectares of deforestation that occurred on Sumatera Island in the 1990-2000 period. The rate of deforestation is the highest in the Sumatera and even in the world. In the 2009-2011period, the highest average annual deforestation in Sumatera Island also occurred in Riau Province, amounting to 120 thousand ha/year (Margono *et al.*, 2014).

The potential of great state revenue, there is an opinion stating that the existence of the upstream oil and gas industry is one of the factors causing changes in forest land use to non-forest (forest conversion). Harun (2009) states that the upstream oil and gas industry is one of the main causes of forest conversion in Riau. In the past, since the enactment of the 1986 TGHK until the time of the new policy on forest area spatial planning in 2014, oil and gas were considered to be one of the causes of this land conversion. This opinion needs to be studied further because several facts in the field show that Harun (2009) opinion is not correct. Forest in the KSM Balairaja area (Camp Duri) and the forest in the Duri oil field of PT Chevron Pacific Indonesia are still protected from conversion.

State that there are 8,020 ha of oil-production of operation land in the Rokan Block that still overlaps with the new policy on forest area spatial planning based on the map SK 878/2014 in conjunction with SK 903/2016 on the Riau Province Forest Area issued by the Ministry of Environment and Forestry. The map from the Ministry of Environment and Forestry is one of the main maps used as a source for the RTRW preparation. As a rule, oil and gas assets are State Property based on Permenkeu No. 135/2009 in conjunction with Permenkeu No. 165/2010 must have a clear status. This overlap causes the upstream oil and gas industrial activities to be threatened with terminating its activities on 8,020 ha of land if the clear status is not obtained. This threat will certainly be detrimental to many parties, including the state, region, and companies.

Tenure amnesty is a form of spatial planning policy intervention that can be used as a medium for resolving tenurial conflicts occurred. Tenure amnesty can be interpreted as a policy of "bleaching/enclaving" (Amnesty) in areas experiencing tenurial conflicts. In this case, the area is the land for operations of the upstream oil and gas industry that already overlaps with the forest spatial planning map. Tenure conflict is the root cause of uncertainty that can hinder investment, state revenue, and even have the potential to cause state losses that need to be resolved. However, this policy solution needs to be studied further.

2 Materials and Methods

The research was qualitative. According to Meleong (2008), qualitative research is research that intends to understand the phenomena experienced by research subjects such as behavior, perception, motivation, actions, and others. Descriptive analysis was carried out using legal reasoning/IRAC reasoning schemes. The IRAC reasoning scheme is a reasoning scheme for policy analysis formers. This analysis was selected on the grounds at the level of policy implementation, tenure amnesty must be in a logical dimension to be applied and not collide with existing regulations. Both regulation and legal umbrella are the most important factors in policy implementation. At this stage, the social and economic impacts of the tenure amnesty policy were taken into account when the IRAC analysis was carried out.

IRAC Is an issue (I), rule of law (R), analysis (A), and conclusion (C). Weruin (2017) describes the hierarchical arrangement of IRAC reasoning as follows:

I = *Issue*: Formulate a case by focusing on the main problem to be analyzed.

R = *Rule of Law*: Any regulations related to the issues analyzed.
A = *Analysis / Argument* (discussion): Analyze regulations related to the problems faced by completing a comprehensive analysis of supporting facts.
C = *Conclusion*: Conclude that it can be drawn from the previous analysis.

Data was collected using the library study method Sugiyono (2007), including finding, investigating, learning, recording, and interpreting (Meleong, 2008; Berg, 2001). To see the application of tenure amnesty policies, regulatory and institutional instruments, and the things that need to be analyzed in the R (Rule of Law) section. The data on procedures and regulations currently in effect are:

1) Regulations about the status of State Property of Oil and Gas Land
2) Regulations governing land/tenure matters in Indonesia
3) Regulations governing forest area spatial planning.

3 Results and Discussions

3.1 IRAC Analysis, Part I (Issue)

The overlap of the operational area of PT CPI's upstream oil and gas industry with forest areas, of course, threatens the contribution that can be given to national oil needs. The Rokan Block as the main contributor to 40% of the national oil, of course, also plays an important role in meeting the national oil demand. The upstream oil and gas sector not only has a direct effect on the increase in regional revenues but also has an indirect and multiplier effect on the economy. The stipulation of a forest area on upstream oil and gas production operation area of 8,020 hectares is a problem that needs to be resolved considering the large role of the Rokan Block in supporting national oil policy.

Spatial planning implies that any development policies made by the Government do not break out from the existing spatial use directives. Implicitly, the Spatial Planning also contains the division of authority between the Central and Regional Governments, both in terms of Determining/Changing the Status of Forest Areas, Granting Spatial allocation permits for Investment and Settlement/Urban and Rural Development, and others. Viewed from an ecological perspective, spatial planning also functions to provide certainty for the protection/pedestrian of areas, ecosystems, and habitats that have high ecological value. Amid its potential as one of the large state revenues, there is an opinion stating that the existence of the upstream oil and gas industry is one of the factors causing changes in land use.

Hadjisaroso (1976) states that spatial control is one effort in realizing the concept of regional development. Thus, apart from being a process for realizing development goals, spatial planning is also a product that has a legal basis (legal instrument) that has a control function to realize the objectives of regional development.

Land-use change in the implementation of development cannot be avoided. These changes occur because of two things, namely the need to meet the increasing population and increasing demand for better life quality. McNeil (1998) states that the factors that drive land-use change are politics, economy, demography, and culture. The political aspect is the existence of policies carried out by decision-makers. Economic growth, changes in income, and consumption are also factors causing changes in land use. Land-use change in an area is the reflection of human efforts in utilizing and managing land resources that will have an influence on humans and their environmental conditions.

3.2 IRAC Analysis, Part R (Regulation)

Assets Regulation of the upstream oil and gas industry as state property

According to SKK Migas (2015), in its history, Indonesia has two business models before PSC, namely:

1) The concession regime was adopted by Indonesia during the Dutch colonial era until early independence. Characteristically, all products within the concession area are owned by the company. Countries in this system only receive royalties that are generally a percentage of gross income and taxes. State involvement is very limited.
2) The Contract of work regime is in effect when Indonesia implement Law No. 40/1960 concerning Oil and Gas Mining. This regulation regulates that oil and gas resources belong to the state. The status of the company is downgraded from the concession holder to the state contractor. In this system, countries and companies share

the proceeds from oil and gas sales. Even though the company is not in the concession holder because the management control is still in their hands. The government's role is limited to its supervisory capacity.

According to Chevron Indonesia (2017), Oil and gas activities in the Rokan Block have been started since 1924. Efforts to search for oil were carried out by the Standard Oil Company of California (SOCAL) with permission from the Dutch East Indies government. SOCAL was offered by the Dutch East Indies regional government an area of approximately 600,000 ha around present-day Riau Province which is now known as Rokan Block.

To explore the area, SOCAL collaborates with another American oil company called TEXACO (Texas Oil Company) and formed a new company called CALTEX (California Texas Corporation). By accepting the offer from the Dutch East Indies Government, Caltex began in Riau Province. The first oil drilling in the Riau began in 1934. In 1940 for the first time oil began to flow from the well site in Sebanga, and in 1941 PT. Caltex Pacific Indonesia (PT. CPI) discovered an oil field in the Duri area.

The nationalization of oil-producing companies owned by the Netherlands began in 1957. This decision was issued by President Soekarno which indirectly had a major influence on Caltex's position as one of the oil-producing companies. Efforts to nationalize foreign oil companies in Indonesia were regulated in Perpu No.44/1960 concerning Oil and Gas Mining. Based on this regulation, it is stated that all oil and gas mining activities in Indonesia were carried out by the state and controlled by the state oil company. After the regulation, all assets of the Caltex Company belong to the State.

The awareness of oil and gas land assets are State Property (BMN) that must be maintained was reiterated by the 2006 government after Perpu No.44/1960 concerning Oil and Gas Mining. Based on Government Regulation Number 6 of 2006 concerning BMN / Regional Management, it is stated that BMN is all goods purchased at the expense of the State Budget or originating from other legal acquisitions. Other legitimate acquisitions include goods obtained from grants/donations or the like, goods obtained as an implementation of an agreement/contract, goods obtained under the provisions of law, or goods obtained based on a court decision that has obtained permanent legal provisions. BMN originating from KKKS is BMN obtained from an agreement/contract. This is also reinforced by the Minister of Finance Regulation: PMK 135 / PMK.06 / 2009 jo 165 / PMK.06 / 2010 concerning Management of BMN originating from KKKS. In this case, the land that has been acquired by PT CPI as a KKKS contractor is also State Property. Furthermore, the acquired assets have been recorded as state assets in the KKKS's reporting to the government.

3.3 Acquisition of upstream oil and gas industrial land to land regulations

By the history of operations since 1924, various eras and regimes have also been passed by PT CPI when carrying out the land acquisition process. In each of these eras, PT CPI always complies and follows the current regulations. The eras are :

1) Before 1960 Era (Before the Law Number 44/1960)
   In this era, there was no specific law stipulated by the Government of Indonesia to regulate land acquisition. However, when PT CPI is about to carry out an operational activity in an area, PT CPI always responds to the Governor to request an operating permit. In this era, most of the Riau area was still forest called stat forest where sufficient approval was given from the governor. As a form of approval, the Governor will issue a permit which in principle approves the activities of PT CPI on the land in the question that is still in the form of forest. In this era, a governor's license could serve the basis for land rights.
2) 1960 until 2001 Era (Before the Law Number 44 Tahun 1960)
   In this era, PT CPI continued to coordinate with the Governor of Riau Province before starting operational activities, was in the field the sub-district head and the village as regional leaders always helped ensure the presence or absence of community activities. In this era, the principle permit from the governor that was issued as a form of approval. It did not automatically serve as the basis for the land rights that would be used by PT CPI. Because in this era, community activities around Riau had begun to be discovered, the Governor issued a permit which in principle approved PT CPI's activities on the land in question with the condition that community rights were first resolved if community activities were found. If community activities are not found, PT CPI can immediately clear land for its operations. If community activities were found, the principle permit must be followed up with land acquisition activities, but on the other hand, if no community activity was found, the governor's principal license can function directly as a basis for rights over land that was still state forest. After the issuance of Minister of Home Affairs Regulation No. 15 of 1975, there was a process of research and estimation of compensation set by the Hold Procurement Committee before the land was acquired. After

Minister of Home Affairs Regulation No. 15 of 1975, the State has more authority in carrying out national development in our country, including the determination of land rights and land acquisition.

3) After the 2001 Era (Law No. 22/2001 Era)
   According to Law No.22 of 2001 concerning Oil and Gas, if the KKKS is going to use the private lands or State lands in the working area, the KKKS concerned must first make a settlement with the right holder or land user on State land. The intended settlement is in accordance with the provisions of the prevailing laws and regulations through deliberation, sale, and purchase or other substitution forms.

After the issuance of Law No. 2/2012 concerning Land Acquisition for Public Interest, land acquisition for the oil and gas sector is classified as the national interest. The provisions in Article 7 paragraph (2) of Law no. 2/2012 confirms that land acquisition for oil and gas drilling is carried out based on Strategic Plans and Work Plans for agencies requiring land as referred to in paragraph (1) letters c and d. Article 7 paragraph 3 Land Acquisition for Public Interest is carried out through planning involving all stakeholders and stakeholders. This means that in this law the oil and gas sector has been made easier because there is no need to submit the Land Use Plan and Development Plan that consists of the Strategic Plan and Work Plan.

Although Law no. 2 of 2012 provides convenience. Personnel occurs on land acquisition <5 Ha. This is because land acquisition <5 Ha does not involve the land acquisition committee and it is purely submitted to the KKKS in collaboration with the local government (in this case the Camat, the Village Head). Often local governments do not fully understand (nor do autonomous sectoral egos) about forest areas or spatial planning, so it can be liberation in areas that should not have been allowed to be released.

3.4 Regulation of activities in forest areas

Based on Article 50 paragraph (3) of Law no. 41/1999 concerning Forestry ("Law 41/1999") stipulates that everyone is prohibited from carrying out activities in forest areas before obtaining permission from the authorized official, namely the Minister of Forestry. So, before the permit was issued, mining activities should not have been allowed (Anjulian & Nurman, 2017).

Article 3, the Regulation of the Minister of Environment and Forestry Number: P.50/Men Environment and Forestry/Setjen/Kum.1/6/2016 concerning Guidelines for Borrowing and Use of Forest Areas ("PermenEnvironment and Forestry 50/2016") state that the use of forest areas for Production Forests and Protection Forests done with Borrowing and Using that can be done. In forestry regulations, there is no other mechanism apart from borrow and use to be able to use forest areas. Borrowing means the regional user borrows from a country where it does not purchase PT CPI done.

For companies that violate these provisions, the criminal sanctions stipulated in Article 78 of Law 41/1999 are subject to criminal sanctions, namely imprisonment (for the director or those authorized to represent the company) and fines and may result in all forest products and/or tools including their means of transportation. which is used to explore forests without permission is confiscated for the State. Apart from criminal sanctions, business actors who violate them may also be subject to compensation and administrative sanctions (Anjulian & Nurman, 2017).

3.5 IRAC Analysis, Part A (Analysis)

Tenure amnesty as a solution to tenure problems in the upstream oil and gas industry in the Rokan Block

As mentioned in the previous section, the collision of regulations made by the government in the case of the Upstream Oil and Gas Industry (Law No. 22/2001), State Property Originating from KKKS (PP No. 6 of 2006, PMK 135. There are two mechanism options for the completion of the forestry permit, namely:

1) Abrogate the status of BMN in the form of land and require IPPKH for land used for oil and gas operations, or
2) Tenure amnesty: conducting Forest Enclaving on BMN in the form of land that has been used for Oil and Gas Operations.

If comparing mechanism 1 (IPPKH) and 2 (BMN Tanah), it can be the advantages and disadvantages of each mechanism. In terms of financing, the costs required for IPPKH are greater than the BMN Tanah tenure amnesty. It is because the IPPKH will create other obligations for its holders apart from data collection through boundaries, PNBP fees, Forest Resources Provision fees (PSDH), Reforestation Fund costs (DR) as well as area reclamation and experts that must be paid if using the mechanism. this. Also, IPPKH holders must provide compensation land (DAS Rehabilitation) of 1: 1 or 1: 2 area depending on the condition of the provincial forest area. 1: 1 if the province where

the activity still has forest> 30% and 1: 2 if the province where the activity still has <30% forest. To then carry out reforestation on the compensation land. Meanwhile, on the other hand, the land tenure amnesty mechanism only requires costs for BMN boundary demarcation. With the cost recovery mechanism with all the financing will be borne by the state, it will be more efficient if we use the BMN Land tenure amnesty mechanism.

In the regulation term, it is clear that IPPKH has the advantage because the forest borrowing and use mechanism has been regulated by the government even though it has only been implemented properly since 2006. However, from an operational point of view, BMN land activities have an easier advantage because IPPKH will create obligations that must be fulfilled. State assets with the status of BMN that have already been reduced will also be reduced if there is the implementation of the IPPKH mechanism. Seeing the compatibility with the president's opinion, the settlement with BMN land is a good choice.

To whiten the overlapping land of upstream oil and gas operations in the t forest areas, a clear legal umbrella is needed to implement it. For now, there are no regulations that can be a legal umbrella for implementing the tenure amnesty. There is only a forest lease and use mechanism to be able to use production forest areas and protected forests as stated in PermenEnvironment and Forestry 50/2016. Meanwhile, for the use of conservation areas, no mechanism can be implemented for the upstream oil and gas industry, because the existing regulations only allow conservation areas for study activities and related to the preservation of ecosystems. The absence of regulations governing the tenure amnesty can result in imprisonment (for the director or who is authorized to represent the company). Apart from criminal sanctions, business actors who violate them can also be subject to the compensation and administrative sanctions (Law 42/1999).

Observing other energy industries, namely the Geothermal Industry that is not much different from the Upstream Oil and Gas Industry, Geothermal production operation activities have obtained a clearer legal umbrella for operating the forest areas. Law No. 21/2014 on geothermal states that geothermal can operate in forest areas and even in conservation areas. In this policy, there is a fundamental change, namely the utilization of geothermal energy is no longer categorized as mining activity, and the use of geothermal potential in conservation areas is permitted, with a Geothermal Environmental Services Utilization Permit (Article 24 paragraph (3) along with its explanation). Article 2 Regulation of the Minister of Forestry Number: P.43/ Menhut-Ii/2008 concerning Guidelines for Borrowing and Use of Forest Areas ("Permenhut 43/2008") that borrowing and using forest areas is carried out based on Ministerial permission (2), so policies from the ministerial level are required. To be able to implement the tenure amnesty policy. The ministerial policy referred to here can be in the form of discretion in the form of a decree or candy. The decree is simpler because it can only be issued by the Minister of Environment and Forestry after receiving input from the Environment and Forestry technical team, while ministry regulation is more complex because it must pass the planning, drafting, discussion, ratification, and legislation stages.

To formulate a more perfect ministerial regulation, before the Ministerial Regulation regarding the tenure amnesty policy an academic paper was made. Although the academic text is only required for local laws and regulations, it is also made for the preparation of government regulations, presidential regulations, and other laws and regulations. Academic manuscripts are texts that contain the results of research or study of a problem that can be scientifically accounted for designing the solutions to legal problem needs by society. The environmental study of land-use change in forests written by this author can be input in making academic policy papers if it is needed.

On the other hand, institutionally, with these conflicting regulations, all parties at the technical ministry or provincial level feel that they have a stake in managing and regulating, due to the sectoral egos of each institution. 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 Coordinating Ministry can be taken to get direction and if it is necessary, new rules will resolve this case.

The tenure amnesty policy against overlapping oil and gas land in forest areas must be placed on two objectives, namely 1) Preservation of forest conservation functions including genetic, species, and ecosystem conservation; 2) Certainty in the development of oil and gas sources. In the policy formula, this goal is a policy outcome that must be achieved through a series of activities that later must be translated into programs accompanied by instruments that can contribute to the achievement of these goals.

3.6 Post-policy harmonization of upstream oil and gas industry operations in forest areas

The working area of the upstream oil and gas industry that is commonly known as the WKP (Mining Working Area) concession covers a fairly large area that is likely to consist of land with different biophysical characteristics. Although

it is the large are, generally, less than 10% of the WKP area is used for the operation of oil and gas activities. As in the Rokan Block, the WKP area covers an area of 650 thousand hectares, while oil and gas activities only operate in about 36 thousand hectares. The actual condition of the forest ecosystem that will be the oil and gas working area is not always in good condition or does not reflect its original condition. It can be the location in a degraded condition or a succession stage, having previously been disturbed naturally or due to human activity that is not related to oil and gas activities. However, whatever the conditions, oil and gas activities must have a positive contribution or added value to the environment, especially after the enactment of the tenure amnesty policy (more environmental additionality than business, as usual,/BAU). This harmonization and value aspect is an additional benefit compared to forest management in a business as usual (BAU) management scheme without any oil and gas exploitation. In the harmonization aspect of the upstream oil and gas industry, it can be directed to provide added value in the context of:

1) Ecosystem management that leads to efforts to maintain the actual condition if the actual condition of the ecosystem is healthy;
2) Ecosystem management that is directed to maintain or accelerate the ongoing succession process if the actual condition of the ecosystem is in the natural succession stage;
3) Ecosystem management is directed at rehabilitation or restoration efforts if the actual condition of the ecosystem is in a degraded condition.

Technically, the implementation of the tenure amnesty policy, there must be regulation and commitment to environmental maintenance that can be agreed between the contractor/manager of the upstream oil and gas industry and also the state. In the activities the upstream oil and gas industry in the Rokan Block, the tenure amnesty policy will be implemented in the form of a Decree or Ministerial Regulation in the form of a policy at a more strategic level that must be followed up at the tactical level with a Forest Management Cooperation Program (PKS) in the upstream oil and gas industry operating area. The Cooperation Program can focus on safeguarding the biophysical aspects of forest areas and legal aspects that include the legality of the operational existence of the upstream oil and gas industry in forest areas. The cooperation that can be done by adopting several forest maintenance matters from the relevant regulations. This collaboration is of course adjusted and aligned with the budget and costs of PT CPI. The regulations that will be considered for adoption are:

1) PP 108 of 2015 concerning Amendments to PP 28/2011 concerning Management of Nature Reserve Areas and Nature Conservation Areas.
2) P.46/Menlhk/Setjen/Kum.1/5/2016 dated 23 May 2016 concerning the Utilization of Geothermal Environmental Services in National Parks, Grand Forest Parks, and Nature Tourism Parks.
3) P.50/Menlhk/Setjen/Kum.1/6/2016 concerning Guidelines for Borrowing and Using Forest Areas

The form of activities that can be cooperated as a form of harmonization must also consider the variables that affect forest conversion both on the oil and gas field scale and the Rokan Block scale obtained in the previous logistic regression analysis. To be able to familiarize the existing rules, forest conversion variables, and also possible forms of cooperation based on the company's ability, it is necessary to create a matrix of cooperation programs that integrate these things (Table 1).

Table 1
Regulatory Cooperation Program Matrix

No	Governmental Regulation Adoption	Regulation Program
1	Collaboration in maintaining the environmental services that include the maintenance of ecosystem potential, climatic conditions, natural phenomena, species peculiarities, cultural heritage in forest areas, and carbon storage and/or absorption;	A. Oil spill response and production-operations cooperation with focus areas are: 1) The area near the river (X1); 2) High elevation area (X4) with a steeper slope (X5); 3) Areas close to settlements (X7); 4) Areas close to oil and gas wells (X12). B. Collaboration to increase the capacity of local communities in the Rokan Block in order to maintain the forest ecosystem through counseling and socialization. C. Collaboration in the studies or research related to forestry and the environment in the Rokan Block. Implementation of CSR (Corporate Social Responsibility) in the context of repair/reforestation of damaged forests.
2	Collaboration n maintaining forest area boundaries and implementing forest protection, especially in conservation areas and protected forests (HL) that border with oil and gas activities;	A. Collaboration in the implementation of joint patrols between forestry officers and PT CPI security officers in the framework of forest protection. The focus areas are: 1) Area near the river (X1); 2) Area with high rainfall (X2); 3) Area close to settlements (X7); 4) Area close to the road (X8); 5) Area around HTI (X10); 6) Area around the HGU (X11); 7) Areas close to oil and gas wells (X12). B. Technology investment and CSR (Corporate Social Responsibility) for forest maintenance by: 1) Provision of Unmanned Aerial Vehicle (UAV) with a drone / fixed-wing for patrolling forest areas that are difficult to reach, such as in high elevation areas / X4 with a more steep slope / X5 (PT CPI can assist in providing these vehicles to complement officer vehicles existing forestry); 2) Provision of helicopters from PT CPI for routine patrols specifically for conservation areas and protected forests (HL). (PT CPI can assist in the provision of helicopters for an agreed time that does not interfere with PT CPI's operations, for example, 2 weeks 1x for routine air patrols); 3) Development of security guard posts and forestry officers in areas with high conversion probability (X9).

No	Governmental Regulation Adoption	Regulation Program
3	Coordination with local forestry agencies and / or holders of forest utilization permits or forest managers;	Coordination with forestry officers for oil and gas production operations that require assistance from forestry officers in the field, such as: A. Coordination of forestry officer assistance in Work Over Well activities (repair of wells); B. Coordination of forestry officer assistance in drilling activities (drilling); C. Coordination of forestry officer assistance in Work Over Well activities;
4	Collaboration in handling forest fires through the establishment of the integrated firefighter task force;	A. Establishment of an integrated task force between PT CPI and forestry; B. Cooperation to increase the capacity of local communities in the Rokan Block in order to prevent forest fires.
5	Provides convenience for forestry officials during monitoring and evaluating in the field	Provide facilities for forestry officials for monitoring and evaluating the oil and gas in the field area;

3.7 IRAC Analysis, Part C (Conclusion)

In principle, there are two solution mechanisms for resolving tenurial conflicts overlapping industrial land upstream oil and gas and forest areas, namely the IPPKH (Borrowing and Use of Forest Area Permits) and Tenure Amnesty. Tenure amnesty is a better mechanism than IPPKH both socially, economically, and institutionally.

To implement the tenure amnesty, a policy from the ministerial level is required because the regulations for the tenure amnesty are not currently available. The ministerial policy referred here that can be in the form of discretion in the form of a decree or candy. A decree is simpler because it can only be issued by the Ministry of Environment and Forestry after receiving input from the Environment and Forestry technical team, while candy manufacturing is more complex because it has to go through the stages of planning, drafting, discussion, ratification, and legislation.

The recommended map for forest area spatial planning revision that is one of the outputs in this analysis is made by overlaying the existing forest area spatial planning map, namely the Forest Area Spatial Planning Map PermenLHK 878/2014 in conjunction with PermenLHK 903/2016 on the Forest Area of Riau Province which issued by the Ministry of Environment and Forestry with a map of PT Chevron Pacific Indonesia's Upstream Oil and Gas Industry Production Facilities. Areas of oil and gas fields that are enclaving / amnesty tenurial are marked with polygon shading colors which indicate the area is an enclaving area.

The planning document that acts as the main basis for the implementation of spatial use is a spatial plan document that is legalized as a statutory law that binds the community as well as government officials. However, spatial planning in Indonesia is not implemented well in the field with the same level of discipline as zoning documents in the regulatory system (Nugroho & Dahuri, 2004).

4 Conclusion

Tenure amnesty is a better mechanism than IPPKH both socially, economically, and institutionally. The presence of the upstream oil and gas industry through tenure amnesty in forest areas is expected to improve the performance of ecosystem management through harmonization of operations followed by a collaborative program. The new policy resulting from the tenure amnesty is expected to be better in terms of governance and implementation because of the weak governance and implementation of the previous policy (TGHK 1986). Weak governance and implementation can lead to uncontrollable changes in land use as in the 1986 TGHK policy. It is expected that the harmonization of the upstream oil and gas industry operations can contribute to maintaining forest ecosystem sustainability.

Conflict of interest statement

We, who are written in the name below, declare that no one has any affiliation or involvement in the writing of this work of any kind of financial assistance matters and no party and the involvement of other parties such as personal or other professional relationships is the content or material to be included in this scientific paper.

Statement of authorship

We state that we are researchers of scientific works in the field of tourism and that we do not include any literature other than those we provide references. We further say that we have not published this manuscript in any other publication journal for any purpose.

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