Positive deviance of Tanjung Puting National Park manager: case of Teluk Pulai Village

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Abstract. Conflict in the national park can be resolved through the positive deviance of national park manager as shown by case of conflict between the Community of Teluk Pulai Village with the Tanjung Puting National Park (TNTP) and the decreased conflict intensity due to policy implementation of village exclusion from the TNTP areas. The objective is to obtain the facts behind the village exclusion processes. The research is using a qualitative approach with a case study strategy and game theory as a quantitative approach. Data collection is conducted through field observation and non-structural in-depth interviews with the informants which are determined through purposive, snowball, and judgmental methods. The literature review is conducted on the applicable regulations and related research. Data analysis conducted through critical discourse analysis compared to the research problem criterion, there are access, conflict, and positive deviance. The result shows facts lying the conflict situation between the Teluk Pulai Village and the TNTP, also the village exclusion from the TNTP areas in which influenced by the role of TNTP’s manager by using the discourse in which deviant positively. Using the discourse, the TNTP’s manager is utilizing the political process of Spatial Planning of Central Kalimantan Province, up to the issuance of Kepmenhut 529/2012. The discourse is deviant since the general practice of national park’s manager are asserting the paradigm of conservation development pointing out the aspects of protection/preservation and conservation. It is called as positive since it is successfully eliminating the conflict between Teluk Pulai Village and TNTP.

1. Introduction
Natural resources in most developing countries are special and incredibly rich, but the resources allocation among stakeholders are imbalanced [1], [2], [3]. It has been mentioned that the imbalance creates conflict due to injustice distribution of the benefit of forest resources, particularly for the community classified as forest-dependent-people. In Indonesian case, it is reported that 32,45 million people or 12.5% from Indonesian citizens are forest-dependent-people who depends their living from the collection and/or utilization of forest resources [4].

Conflict in utilizing the forest resources, particularly from forest with conservation function, happened in various level. But the conflict happened the most were between community and the state [2], [5], [6], [7], [8], [9], [10]. Conflict was escalated due to an access prohibition of an intensive agricultural activity within the forested area, whereas it is the only livelihood resources for the forest-dependent-people since generations ([5], [10], [11], [12], [13], [14], Head of Teluk Pulai Village, 13 January 2018 personal communication).

Intensive agricultural activity is the other form of land tenure practice within the forested area and as known as encroachment [6]. However, currently the connotation of encroachment is becoming negative [11]. Due to distinguished in regards to the legitimate/illegitimate for such agricultural activity within the forested area since the existence of a policy institution (state) [6], particularly in the forestry sector.

In Indonesia’s forestry sector, there is Law 41/1999 regulating that particular forested area can be appointed as forest area with conservation function and later to be appointed as national park as stated in the article 6 of Law 41/1999 [15]. The implementation of this law followed by the implementation...
of various other law and/or derivative regulations in which causing the losses of community livelihood who are living within and/or surrounding the conservation areas, such as national park (5; Head of Teluk Pulai Village, 13 January 2018 personal communication). Under this regime of law, the utilization of forest resources is limited only for the activities which are considered not threatening the core zone of national park, such as collection of non-timber forest products (NTFP) and eco-tourism [15], [16], [17], [18].

The prohibition of access and attributed negative connotation to the encroachment activity [19] was creating an injustice feeling and causing the basic needs disparity, such as an absence of education and health services [20], as happened in Teluk Pulai Village which was a part of the areas of Tanjung Puting National Park (TNTP) (Head of Teluk Pulai Village, 13 January 2018 personal communication). Whereas, the existence of basic needs are included to the village development activity to improve the quality of life and to get the maximum welfare for the community through the tenacity of social, economic, and ecology in sustainable way which apart of the Index of Village Development [21]. Eventually, the word of “conservation” is much disliked by the forest-dependent-people and seen as an obstacle for the local development so that less supported, and even be opposed by various stakeholder [12], [22], [23], [24], [25], [26].

The conflict situation between the Teluk Pulai Village and the TNTP is a common phenomenon to be discovered within national park management [5], [26]. All of these were due to an injustice of access to the benefit of forest resources as production factor to fulfill the community economic needs [27], [28] and seizure of production factors between the class who less-owned the property and the class who owned the property in major scale [29], [30]. This conflict phenomenon and its resolution can be seen through the examples of management of Gunung Halimun-Salak National Park (TNGHS) [5], Yellowstone National Park [22], Kutai National Park [31], Bukit Duabelas National Park [10], and Meru Betiri National Park [26]. These studies, in addition to several previous studies [32], [33], were showing the paradigm of conservation management that prioritizing the aspects of protection and preservation attributed to the concept of conflict resolution.

Consequently, there was a hesitation on the effectiveness of conflict resolution technique. Such as, co-management was perceived not fulfilling the ecosystem-based-management principles collaboratively, there are holistic, integrative, and sustain, as well as demanding the establishment of an effective institution and policy alternative for forest management. Furthermore, in objectifying the effective institution and its policy alternatives, in solely using this paradigm, it was creating resistance from the forest-dependent-people to the presence of national park, instead. Because, the translation of effective institution and policy alternative is by implementing relocation, law enforcement, establishing the special zone, or mutual agreement considered to be benefited for both parties. Despite mutual agreement is created, there was a conflict of interest between what is wanted by the community and what is required by the national park. It is since the regulation, as mentioned above, is only allowing an economic activity based on collection of non-timber forest products (NTFP) and eco-tourism, meanwhile for the forest-dependent-people it is necessary to maximize their utility from the provided forest resources in case of no other alternatives, yet [34], [35], [36].

Anyhow, there is a concern on whether the enclave and release of forest areas can be implemented in national park’s conflict resolution. Nevertheless, it is a crystal clear that the existing policy of national park management could not support such alternatives nor aperture for the national park manager to take discretion policy.

But for the case between the Teluk Pulai Village and TNTP, it is known that the conflict situation is changed and tent to be reduced since year 2013 when the Government of Republic of Indonesia cq. Ministry of Forestry (nowadays known as Ministry of Environment and Forestry/MoEF) enacted a policy that leads the area of Teluk Pulai Village is excluded from the TNTP’s area. This policy has a positive impact regarding the economic improvement of Teluk Pulai Village from either the private or government investments with minimum intervention to the forest resources of national park (The Eldest of Teluk Pulai Village, 13 January 2018 personal communication). Through the personal communication it known as well that the changes of conflict situation ignited by the context of conflict
or problem and the TNTP’s manager as an agent who is solving it. Furthermore, the conflict resolution is developed through the experiment of the manager in which deviant from the common national park management practices. Andrews [37] mentioned that the policy breakthrough which influenced by the context of conflict was showing the positive deviance on the public sector management.

Positive deviance has been mentioned as the changes in public sector in the developing countries due to mistake on the policy intervention and weakness of government capacity [37], [38]. The positive deviance also known as an abnormal success in which Andrews [37] says that led to the more functional of government performance, may able to solve the issue, and reaching the desirable function to produce the public values. The study of positive deviance has never been met in exploring the conflict resolution within the national park management. It is since the most studies were related to the Organizational Citizenship [39], Agricultural Development [40], Sustainability Leadership in Climate Change Issues [41], and Fossil Fuel Divestment [42]. Andrews [37] is further explained that there are 2 theories to explain the positive deviance, there are “solution-and leader-driven change” (SLDC) and “problem-driven iterative adaptation” (PDIA). By referring to the conflict situation of Teluk Pulai Village and the TNTP above, the PDIA is more comprehensive to explain the facts behind the village exclusion process in which this process is influenced by the role of TNTP’s manager that is deviant positively. The facts then presented as an outcome of the national park management. However, to articulate the facts, this article is intended to answer the research questions as follows:

1. What was the condition that enabled the village to be excluded from the TNTP areas?
2. What was the role of main actors in the processes of village exclusion?
3. What kind of discourse was constructed behind the process of village exclusion processes from the TNTP areas?

In answering the research questions above, such research in this article is carried out by reviewing the criterion of research problems, there are problems on access, conflict, and positive deviance by the TNTP’s manager. Other than that, game theory approach according to Rasmussen, Soedomo, and Yasukawa [43], [44], [45] are used to shows the relationship balance between Teluk Pulai Village and the TNTP at before and after 2013. The mentioned year was the turning point of the relationship balance due to the policy issuance in the Indonesian forestry sector. Game theory is used to provide the quantitative model to examine the change of behavior strategy by understanding conflict and cooperation [46]. Each model is based on assumptions that detail and simplify the modeled system and distributing the obtained result/benefit by one strategy relative to the other [45]. Furthermore, the developed model then treated as a hypothetical model in explaining the positive deviance of TNTP’s manager.

2. Methodology
Data collection and field observation were conducted on January 2018 to obtain basic information regarding the conflict situation between the Teluk Pulai Village and the TNTP. The research then continued by a non-structural in-depth interview to the stakeholders who could not be contacted during the preliminary research and the collection of other supportive documents, as well. The collection timeframe of documents was on October 2018-February 2019, meanwhile the interview was conducted on March 2019.

The research is carried out by using qualitative approach [47] with case study strategy [48], [49], [50]. Particularly Yin [48], and Hudaya and Smark [50] have mentioned the conditions under which case study would be appropriate or not, these are: a) There are critical questions regarding “what”, “why”, and “how”; b) Researcher has minimum authority to the case to be examined; and c) The research’s focus is on the temporary phenomenon within the context of real life. The benefit of using case study strategy is the provision of clear image regarding the conflict situation related to its social context. However, the case study strategy cannot examine the hypothesis, but can only develop such hypothesis, or provide conclusions which applicable in general [50]. In answering the key questions, the research is presented narrative by using systematic [51].
The data obtained during the qualitative research with case study strategy is often unstructured, full of tolerance, and ambiguous [49]. It is important to validate the data/information to reduce the misinterpretation possibility. Stake [49] is also mentioned that the data validation procedure in the qualitative research is called with triangulation technique. This technique is commonly referred to as the process of perception utilization that varies to clarify the meaning and verify the possibility of redundancy form either observation or interpretation. According to the International Standard Organization (ISO) [52] the triangulation technique is carried out with the data/information which come from three sources, these are direct observation in the field, in-depth interview, and document verification, particularly the related report/law/regulation, including the previous research.

Data collection from the field observation is carried out together with the non-structural in-depth interviews to the determined actor/informant during the preliminary study. The informant is determined purposely to those who were already know and/or are directly involved in the conflict situation of the Teluk Pulai Village and the TNTP. The non-structural in-depth interviews with the informants are conducted to obtain information related to the history of the Teluk Pulai Village and TNTP, the form of conflict that was happening between parties, and the government regulation that supporting the exclusion of the Teluk Pulai Village from the TNTP areas. During the non-structural in-depth interview, the snowball technique is applied, as well, to obtain the information from the informant related to other parties or other informant that has an influence on the changes of conflict situation between the Teluk Pulai Village and the TNTP. During the in-depth interview with snowball technique, the intended information to be obtained is regarding the key actor identification in the village exclusion policy and the understanding to the actor discourse.

Content analysis of the law/regulation that ruling and/or influencing the management of TNTP is carried out. The content analysis uses the approach of Critical Discourse Analysis (CDA) [53]. Hammersley [54] reviews the CDA by using construction-ism perspective. On this perspective it is known that the CDA is not only limited to capture an importance from the social environment, but also plays key ethics and political roles in showing how the social phenomenon is constructed discursively or not related each other. From this statement, Nikander and Vehvilainen [55] explain in detail that the CDA could be divided into two analysis level, these are micro and macro.

On the micro analysis, CDA is conducted on the social interaction and verbal communication in various social settings and the social construction of activities, knowledge, competence, and identities thereof. On the macro analysis, CDA can be conducted on the institutional regimes and knowledge structures, the analysis of the production of realities, and facticity. From the explanation, Williamson et al [56] mentioned that CDA points out to the idea, fact, and dynamic knowledge, in which changed throughout the discourse change. It shows that the discursive event could be constructed by situation, institution, and social structure.

The data/information that is obtained during the non-structural in-depth interviews from the informants then further transcribed into chronicle notes which were analyzed according to the research problem criterion, there are: access, conflict, and positive deviance. Each criterion then being translated into various indicators which are analyzed by a verifier.

3. Result and Discussion

3.1. Conflict Situation due to Prohibition for the Community to Access the Forest Resources

The discourse behind an appointment of TNTP areas as national park was a common paradigm on conservation in which emphasizing the aspect of protection and preservation by the national park manager. Despite, law 5/1990 is quite certain in explaining that the conservation of natural resources and its ecosystem is implemented through the activities of: a) Protection of the life support system; b) Preservation of the biodiversity of flora and fauna, and its ecosystems; and c) Sustainable utilization of the natural resources and its ecosystem, but due to the implementation of various related laws and derivative regulations, the conservation management in the national park is neglecting the access of the forest-dependent-people to the forest resources to get benefit from it (5.57; The Eldest of Teluk
Pulai Village, 13 January 2018 personal communication). Even though, the access to the forest resources was ever since their existence in the forest areas, but the status as an encroacher (6,19) attributed to the community from the Teluk Pulai Village, they had a limitation in improving their livelihood from the forest resources.

One of the definitions of access according to Ribot and Peluso (28) is that the power or ability to create benefit from goods. In the context of Teluk Pulai community, the forest resources are considered as goods itself as livelihood sources or asset or production factor. This ability is not solely as resultant of their capability in accessing the resources, but also determined by the access in controlling the resources. They explained that the access in controlling resources are belongs to various actors and institutions. It has an impact for the other stakeholders who has willingness to get or even maintain their access to the similar resources, should obtain rights from the actors of institutions in which controlling such access.

In connection to the relationship between the Teluk Pulai Village and the TNTP it is known that ever since the appointment as national park, so that the TNTP is the legal institution and the stiffs and/or manager as related actors in controlling the access to the forest resources within their areas. One of the controls is by excluding unnecessary stakeholders and its activities considered threatening the integrity of national park [16]. What TNTP’s did was an implication of the transfer mechanism of an authority from the state.

It is stated that the power of exclusion happened through four mechanisms, there are regulation, coercion, market, and legitimization/acknowledgment of validity [27],[58]. Due to the implementation of these mechanisms, the community’s ability in fulfilling their livelihood was extremely limited, particularly at the era before 2013, when the status of village areas was included in the TNTP’s areas.

Government of Republic of Indonesia [59] through the article 6 of the Decree of Ministry of Forestry 56/2006 stated that the national park areas are managed into 7 types of zoning based on the conservation function and its intention. Two types of them are utilization zone and traditional zone. In regard to the zoning system of TNTP and its connection to the status Teluk Pulai Village, during the time, the village status was classified as ocean areas of TNTP with total areas of 9.961 hectare [57] which was a mixed between utilization-traditional zones.

The logical consequences of this transfer mechanism to the TNTP, so that the forest-dependent people from the Teluk Pulai Village should obtain any utilization rights or permission whenever they would access the TNTP’s forest resources. But, according to the related regulations, the utilization of forest resources is limited to what is already determined by the government, there are
utilization of environmental services and eco-tourism [16]. Whereas, these activities could not generate sufficient benefit for the forest-dependent-people of the Teluk Pulai Village which are considered as community with the vulnerable context [60] Meanwhile, there were several alternatives from similar resources, but with higher economic values, there were mengembor, meramin, and gaharu (34–36; Head of Farmer Group of Marjan Abadi, 13 January 2018 personal communication). Therefore, these high-economic-activities, considered as an encroachment [6], [19], was frequently happened within the TNTP areas with unstructured pattern. It is happened due to the community effort in avoiding the sanction from the authorities due to the considered-illegal-activities within the forest areas (Police Officer for Village Assistance on Community Security and Discipline, 12 January 2018 personal communication).

Mengembor identified as peeling wood skin of particular trees to be utilized as bugs repellent. This activity initiated by felling the intended trees and peeling the wood skin along the logs up to the branches. Meramin identified as felling the ramin trees (Gonystilus bancanus) to be utilized for timber industries. Meanwhile, Gaharu identified as felling the agarwood (Aquilaria malaccensis) to collect its resin form its rotten softwood for the fragrance industries.

According to Myers and Hansen [27] it is shown that the definition of access by Ribot and Peluso and its connection to the situation of the forest-dependent-people of the Teluk Pulai Village in accessing the forest resources, has close relations to the components of the sustainable livelihood approach (SLA) proposed by Chambers and Conway [61], and Apine et al. [60]. The components are: (i) Livelihood sources/capital (asset) mediated by, (ii) The institution and organization then forming, (iii) The livelihood strategy and eventually resulting, (iv) An income; these are all played within, (v) The specific context in appropriate to the condition and trend on vulnerable context. Nevertheless, the implementation of national park management policy has been eliminating the access of the community to the forest resources to obtain various benefits to get the maximum utility. It was even eliminating any opportunities of the community as forest-dependent-people in achieving the sustainable livelihood. Soedomo et al. [35] assured that the loss of access to the production factor escalates the impoverishment processes of the community who are depending their lives from the forest resources. This situation was a basic reason of the conflict situation between the Teluk Pulai Village and the TNTP. This is also in line with Dahrendorf [29] and Tittenbrun [30] that explained the conflict tent to be happened due to the parties who have less-owned-property have lost their production factor. This loss happened since there was neglect-ion from the parties who have property in major scale (property: TNTP) on: a) An access to the production factors, b) Acknowledgment of management right, c) Improvement on welfare, and d) Power that have been owned by the parties who have less-owned-property (propertylessness: the Teluk Pulai Village).

3.2. What was the condition that enabled the village to be excluded from the TNTP areas?

Stakeholders from the Teluk Pulai Village had an awareness to the story behind the conflict, so that since 2003 various efforts have been carried out in changing the situations for the sake of improvement of an economic welfare of forest-dependent-people. Initiated by a proposal to the local government regarding the village budget allocation to support the village road construction, provision of agricultural equipment, and another productive-economic-activity in the village (Head of the Teluk Pulai Village, 13 January 2018 personal communication; Secretary of the Teluk Pulai Village period 2002-2010, 14 January 2018 personal communication). However, due to the implementation of various laws and derivative regulations on national park management, any supports or assistance from any parties, including local government from either the provincial or district level to the village, were forbids and considered as a violation of law.

Various studies on conflict resolution have been taking place [5],[10],[22],[26],[31],[32],[33], however as mentioned in the earlier part of this article that some limitations were also taking place, even for the conflict resolution through enclave and/or release of forest areas as perceive as an ultimate breakthrough. It is due to the existing policy of national park management could not support such notions of enclave and/or release of forest areas within the national park.
Notions of enclave and release of forest areas came up during the series of meeting that have been conducted to the TNTP’s manager (Secretary of the Teluk Pulai Village period 2002-2010, 14 January 2018 personal communication; Head of the Office of TNTP period 2008-2012, 28 March 2019 personal communication). It is since, in the context of conflict situation of the Teluk Pulai Village and the TNTP, the village did an observation for any possibilities to change the status of the village areas from its existing status as utilization-traditional zone of TNTP. Particularly for enclave, Falah [31] stated that it can be conducted to the several part of national park areas in which could not be managed effectively, as it has been of having public facilities, social facilities, infrastructure, massive settlement, government office, and others. However, these notions were not as simple as it is to be implemented to change the village status from national park areas.

Enclave is initiated by the rearrangement processes of spatial planning, evaluation of national park areas appointment policy, and revision on the policy of national park extension areas. According to the Government of Republic of Indonesia [62] regarding the article 11 point b of Government Regulation 10/2010 which is explaining that the enclave of an areas owned by person or any business entity within the forest areas based on a legal and legitimate evidences according to the applicable law/regulation. According to the Government of Republic of Indonesia [63] regarding the article 23 and 57 of P.44/2012 that the areas are identified to have a third party rights in which having a legal and legitimate evidences, so that can be enacted as an enclave and excluded its existence from the forest areas.

In the P.44/2012 it has been mentioned that the prerequisite of enclave within the conservation areas are only can be happened to the areas which are identified for having legal and legitimate evidences of third-party rights. The third-party rights are in appropriate with the explanation of article 24 of P.44/2012. Therefore, in the case of Teluk Pulai Village which is the community was only providing the evidence of ownership rights by only verbal information of the village’s history, so that the enclave cannot be conducted. Other alternative of conflict resolution other than enclave is release of forest areas based on PP 10/2010. However, in regards to the village within the national park areas, the context of release of forest areas is stumbled by the article 1 of PP 10/2010 mentioned that the release of forest areas can only be conducted to the areas of converted forest production to become non-forested areas. Furthermore, the article 36 of PP 10/2010 detailed the release of forest areas can be conducted whenever to become a protection forest and/or production forest. Despite this government regulation has been revised through PP 104/2015, the context of release of forest areas are still the same. Therefore, such breakthrough on actions and/or discourse to be taking place in resolving the conflict between the Teluk Pulai Village and the TNTP.

3.3. What was the role of main actors in the processes of village exclusion?
The other alternative on conflict resolution initiated by the discourse of TNTP’s manager in which considering the history of village presented in this area before the existence of TNTP. The other consideration was these particular areas were already a massive settlement, so that relocation option of the existing community and management of the abandoned areas due to relocation by the TNTP’s management were an impossible effort. It was since the financial budget for the relocation processes cannot be afforded by the government and this process has a potentiality in escalating the conflict to the higher level. Despite the relocation was succeeded, there was a hesitation for the TNTP could manage the intended areas due to limited financial budget. Besides, the TNTP’s manager perceived to expedite the conflict resolution to reduce the tension between stakeholders by promoting the paradigm shifting from the prohibition for the community to access the forest resources to the involvement of the community in managing the forest resources ([57]; Head of the Office of TNTP period 2008-2012, [28] March 2019 personal communication).

Such effort by the TNTP’s manager was utilizing the processes of spatial planning of forest areas in the Central Kalimantan Province to replace the Agreed Forest Spatial Planning 1984 (Tata Guna Hutan Kesepakatan/TGHK) (Head of the Office of TNTP period 2008-2012, 28 March 2019 personal communication). During the processes the TNTP’s manager was giving an indication to the
committee of forestry spatial planning for the TNTP areas to be re-arranged. Finally, the Government of Republic of Indonesia [64] eq. Ministry of Forestry (Nowadays: Ministry of Environment and Forestry) issued the Decree of Ministry of Forestry No. SK 529/Menhut-II/2012 (Kepmenhut 529/2012). Based on the Kepmenhut 529/2012 it is known that the origin total areas of TNTP of ±415.040 hectare in 1996 has been decreased to become ±410.694 hectare. The impact was several areas are excluded from its status as national park, there are the areas of Teluk Pulai Village, Sungai Cabang Village, Sungai Butuh Village, and Cape of Harapan (565; Head of the Office of TNTP period 2008-2012, 28 March 2019 personal communication). Nowadays, these areas are known as non-forested areas (Area Penggunaan Lain/APL).

3.4. What kind of discourses was constructed behind the process of village exclusion from the TNTP areas?

The discourses and action of TNTP’s manager considered deviant since the most managers were preserving the conventional paradigm in protecting and preserving the forest resources, instead including the aspect of utilization, due to the implementation of law and regulation in national park management. Moreover, this law and regulation is also creating impossibility for the managers in taking discretion policy. Meanwhile, the TNTP’s manager has shown the paradigm shift that giving priority to the forest-dependent-people in fulfilling their livelihood sourcing from forest resources.

Ochieng (40) was mentioning the positive deviance as a peculiar behavior intentionally deviant significantly from the existing norms of certain group (in the sense of positive way) to create such innovations on social, technical, institutional, organizational, and policy, whether or not these are adhered to or approved by certain group. Basic assumption of the positive deviance that within the organization there is a person in which deviant from the norms to have a solution for the existing issues in a sense that there is an obstacle form its neighbor. Andrews [37] pointed out that such deviant called positive whenever it creates unusual or abnormal success. It is called abnormal since it is against the mainstreamed discourse. Therefore, the deviant of TNTP’s manager on discourse and action in appropriate with the definition of positive deviance [37],[40] .

By using the problem-driven iterative adaptation’s (PDIA) theory [37] it can be explained that the motivation of TNTP’s manager in finding such conflict resolution was the continuous conflict between the Teluk Pulai Village and the TNTP. Whereas, the conflict itself classified as manifested conflict (Fuad and Maskanah 2000 in 5) . It is manifested since all stakeholders were actively involved in the conflict were starting to negotiate and probably facing deadlock, in high sense. Various resolution was taking place in trial and error by conflicted stakeholders, reciprocally, such as through an advocacy by the village authority to the other intended stakeholders and the notion on policy breakthrough by the TNTP’s manager. The resolution was by utilizing the political process of spatial planning of forest areas in the Central Kalimantan Province which was having strong influence on the local and national policies of national park management in this region. Eventually the solution initiated by the TNTP’s manager was supported by various stakeholders (Head of the Office of TNTP period 2008-2012, 28 March 2019 personal communication). Andrews assured that the notion on conflict resolution (initially) was intended to change to the new things in appropriate with the complex’s context.

3.5. The Hypothetical Model Developed by Using Game Theory

The issuance of Kepmenhut 529/2012 has decreased the tension of conflict situation between the Teluk Pulai Village and the TNTP. This is the new equilibrium and the most updated situation from the common relationship as seen within the national park management [5], [10], [22], [26], [31], [32], [33]). In describing the changes, the game theory is employed. It is since in the context of conflict situation there was an institutional evolution initiated by the actors to increase their utility.

Rasmussen [43] and Yasukawa [45] applied an assumption that each actor or player or stakeholder do not know the behavioral action that will be chosen during the same game, respectively. In explaining the stakeholder behavior with their intention, it is employed the mathematical model.
In creating the functional game, Rasmussen, Soedomo, and Yasukawa were showing that at least there are 2 players, rule of the game, outcome, and utility/pay-off. In details, Soedomo [44] explained as follows:

1. Players : Who are the players involved?
2. Rules : Who is moving in particular period of time? What do they know? What they need to do?
3. Outcome : Each movement by each player, they are granted by such an outcome.
4. Pay-off : The function of an outcome (utility) of each player that probably be generated after the game.

In the conflict situation between stakeholders, it is known that the Teluk Pulai Village and the TNTP are the main players. An explanation of stakeholder’s behavior, outcome, and pay-off as mentioned in the following Table 5:

| Stakeholders                      | Information                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------|
| Community of Teluk Pulai Village (MD) | Behavior: Agricultural activities within the forest areas in scattered pattern. | Outcome: Access to the benefit of forest resources (outcome x). | Pay-off: Sustainable livelihood (Pay-off v(x)). |
| TNTP (TN)                          | Security of forest areas through forest security patrol, law enforcement, and socialization. | Outcome: Sustainable of forest. | Pay-off: Conservation function of forest areas. |

The employed scenario is a hawk-dove scenario in fighting over the similar sources of one to another (territorial) according to [43], [45]. The sincere behavior of hawk is as an oppressor and the dove is as an oppressed. Therefore, the dove is taking its behavior silently to avoid the hawk’s oppression. Whenever the hawk is finding out the dove’s activity coincidentally, the dove will be wounded due to the hawk’s oppression. However, the hawk could meet another hawk in similar territories, and they would have similar resistivity. Therefore, there will be a high possibility on manifested conflict to be happened.

Regarding the conflict situation as explained before, it is known that 2013 was the turning point of relationship between these conflicted stakeholders or as known as an equilibrium change due to the issuance of Kepmenhut 529/2012. Before 2013, the MD’s activity in conducting the agricultural activity within the forest areas with scattered pattern is happened to avoid the detention or sanction from the authorities. The utility function or pay-off of MD was the access to the forest resources to fulfill their livelihood (x) within particular period of time (t), so that the pay-off probability would be \( v(x) \). Otherwise, during the forest patrol activity by TN, including law enforcement and socialization of considered illegal activity, MD decreased their activity and even did not do any activity within the forest areas. Therefore, MD would be wounded representing by the pay-off probability for MD that would be \( x=0 \) due to the loosing of access. Similar illustration happened for TN in expecting the outcome within particular period of time. Furthermore, the pay-off (y) expressed as follows:

\[
v(x) = a + bx \quad (1)
\]

Coefficient \( a \) in the equation (1) shows the pay-off \( v(x) \) whenever \( x \) is equal to 0, meanwhile the coefficient \( b \) is the changes of the value of pay-off \( v(x) \) whenever \( x \) is changing per unit. Therefore, the higher the stakeholder’s income (x), the higher the respective pay-off that probably received.
When accessing the benefit from forest resources, MD was always avoiding TN, it is since for TN the MD’s activities are illegal and treated as a sanction object. In the other hand, TN has always had a limitation in securing the national park areas in timely manner. Whenever it is happened continuously, it was affecting the quality of forest resources due to the intention of continuous forest resources utilization by MD will be followed with inappropriate management or rehabilitation. This was causing the quality of forest resources in which an ultimate resource of stakeholders to achieve the targeted outcome \( k \). In a long run, together with the continuous conflict, the quality of forest resources is deteriorated and diminishing the stakeholder’s prospective outcome, so that they were only achieve the pay-off as \( k(x) \).

\[
k(x) = cx - d \tag{2}
\]

By using similar assumption as equation (1) and added by the deduction factor of 2 unit to express the continuous deterioration quality of forest resources, so that it is obtained the equation (2). Coefficient \( d \) in the equation (2) is a representative of value be affected by the deduction factor whenever achieving the pay-off \( k(x) \), so that it can be negative when \( x=0 \). Despite \( x=1 \) with the coefficient \( c \) that is expressing the changes of pay-off \( k(x) \) per unit of value, therefore \( k(x) \leq v(x) \).

Besides, when TN found out the factual activity of MD within the national park areas, then MD switched their roles as another hawk and acting aggressively in maintaining their prospective outcome from the benefit of forest resources, so that there was a manifested conflict. The manifested conflict could be happening due to loss of an outcome of each stakeholder, for any reasons. In this case, either MD or TN, are very possible to achieve the lowest pay-off compared to the common situation. The lowest level of pay-off happened because of the other cost that had to be expenses by both parties to process (for TN) and confront (for MD) the sanction. However, there were a maximum cost that could be borne by both parties to be expenses. Therefore, the pay-off expressed as follow:

\[
w(x) = \left( \frac{e \cdot x}{f+x} \right) \tag{3}
\]

The relationship of \( w(x) \) is expressing the reaction changes of stakeholders due to the manifested conflict time. This relationship is drastically influencing the probability of achieved pay-off since they have to expense an additional cost in particular level of a maximum value \( e \). Presumably the value of \( e \) is equal to the pay-off \( v(x) \). the manifested conflict is happened whenever \( f \) is equal to \( \frac{1}{2} e \) in which all stakeholders have been actively involved to the conflict, starting to negotiate, and they have a high possibility in facing deadlock, particularly when the factual cost is equal to \( e \).

Net pay-off of an above scenario expressed as follow:

\[
f(x) = k(x) - w(x) \tag{4}
\]

Therefore,

\[
f(x) = (cx - d) - \left( \frac{e \cdot x}{f+x} \right) \tag{5}
\]

Equation (5) is showing pay-off \( f(x) \) after the additional cost as a deduction factor expenses by MD and TN to handle the happened manifested conflict and the deterioration of the quality of forest resources that have been quantified. Therefore, such a breakthrough on the discourse by the TNTP’s manager was by eliminating these coefficients by took an advantage of the process of forest spatial planning in the Central Kalimantan Province up to the issuance of the Kepmenhut 529/2012. it is impacted to the relationship between the Teluk Pulai Village and the TNTP towards better situation among others since 2013. It is indicated by the reduced conflict due to the sanction from the authorities.
to the entire activities of the community of Teluk Pulai Village which were considered illegal. So that, the possible net pay-off after the issuance of the Kepmenhut 529/2012 would be $f_\alpha(x)=v(x)$. Eventually, the net pay-off $f_\alpha(x)$ is achieving the condition what is called with self-enforcing (44) there is the net pay-off in which win-win solution for both the Teluk Pulai Village and the TNTP.

4. Conclusion

The research is necessarily intended to be within the scope of positive deviance of TNTP’s manager who was taking an advantage of an opportunity of the process of forest spatial planning of the forest areas in the Central Kalimantan Province up to the issuance of the Decree of Ministry of Forestry No. SK 529/Menhut-II/2012. The research was confronting the established discourses among the national park manager with the other discourse alternative as shown by the TNTP’s manager. Finally, the facts behind the village exclusion processes were showing the discourse of TNTP’s manager influenced by previous and current situation of village relative to the national park. Besides, the TNTP’s manager is promoting the changing of mindset in managing the national park, from preservation and conservation towards sustainable forest utilization.

The issuance of policy always has an enabling condition in term of political processes of stakeholders with its existing discourse. It is necessary to understand the political process and who has an initial notion of this political process or called as political entrepreneur. For forestry sector in Indonesia, whether the enabling condition is influenced by the Decree of Constitutional Court No. 45/2011.

Meanwhile, the discourse of TNTP’s manager was resolving the conflict situation. Whether or not the discourse could be a role model of management of conservation areas in Indonesia. So that, it is necessary to analyze its impact to the system of education, research, and forestry institution in the management of conservation areas. It is important, as well, to analyze the institution resilience of forestry spatial planning policy in connection to the district spatial planning, through the concept of path dependency and the self-governing situation by using empirical studies.

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