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The Analysis of Institutional Performance of The Village Conservation Model in Gunung Rinjani National Park

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Abstract. The Village Conservation Model (MDK) is a program focused on empowering communities around the conservation areas. This research aims to analyze the performance of MDK in Gunung Rinjani National Park (TNGR) from the institutional perspective and rights of community access to resources in TNGR. The approach used in this research combines the qualitative and quantitative methods. The result showed that MDK in TNGR both in Santong Village and Pesangrahan Village did not regulate the rights of community access to the resources utilization in TNGR area which has been going on. On the other hand, the institutional structure of MDK also did not regulate the operationalization of MDK implementation such as the monitoring mechanism, the enforcement of a sanction, the benefit-cost sharing and the stakeholder's involvement of MDK implementation. This has implications for the low performance of MDK institution in TNGR. It takes the arrangement of MDK institutional elements such as the boundary of Jurisdiction, Property Right and representative regulation that is expected to adapt to the characteristics of local communities and the interests of other stakeholders.

1. Introduction

One form of management of conservation area that is driven by the Ministry of Environment and Forestry to improve the community participation in the management of conservation area that is the development of Village Conservation Model (MDK), this program aims to improve the welfare of communities in and around the conservation area through various programs of empowering community groups. Conceptually, MDK is a model village in an effort to empower communities in and around the conservation forest by taking into social, economic, cultural, and the other aspects and will be an example of empowerment elsewhere [1].

The MDK program in the early stages is implemented during the period of 2005 until 2009. At the beginning of 2005, each of the technical implementation units (UPT) of Ditjen PHKA was mandated to build 2 units of MDK. Up to 2009, there were 133 MDK that has been built in all the UPT of Ditjen PHKA included in the area of Gunung Rinjani National Park [2]. The form of intervention, conducted by The Office of Gunung Rinjani National Park (BTNGR) within the framework of MDK implementation is by providing some assistance to the community groups, with the aim to improve the welfare of the community through empowerment, so can reduce the conflicts and forestry violations in the national park area. However, until now the MDK program that implements by BTNGR did not work optimally. Based on the result of interviews with the local community and the report on implementation of the 2012 MDK evaluation in TNGR shows that the current condition of MDK implementation is no longer effective. Some



of the aid equipment which is given as a form of empowerment effort is now no longer usable because of the damage, and the institution that appointed to oversee the implementation of MDK is also no longer work.

Reports in other national park that implements the MDK program such as Takabonerate National Park [3], Merapi National Park [4], Gunung Palung National Park [5] and Gunung Halimun Salak National Park [6] also describe that the implementation program of community empowerment through MDK has not worked optimally. Some of the main issues that arise are related to the limited group capacity issues and the less running collaboration on the MDK management. This has implication for incentives and stimulus that provided has not been able to optimize the implementation program. Consequently, the MDK program continues to do, but never reaches the expected goals.

Conceptually, institutions are the mechanism, rules of the game, norms, restrictions, and rules that regulate and control the behavior of individuals in the community or organization [7-11]. Institutions are built to reduce uncertainty of the control over the resources and to suppress the opportunistic and harmful behaviors so the human behavior to maximize their welfare is more predictable [9]. However, the critical issue in designing an institution, including forest management institutions, is an institutional sustainability issue [12]. The institutional designs are often not become the rule that are done by the parties in interacting. Therefore, the question that arises in this research is why the implementation of MDK less touched on the institutional-related issues and the regulation of community property right to the resources. This research aims to analyze the performance of MDK in Gunung Rinjani National Park (TNGR) from the institutional perspective (situation, structure and performance) and rights of community access to resources in TNGR.

2. Research Methodology

This research was conducted in Gunung Rinjani National Park, which lasted from April to August 2016. There are two village areas defined as the research focus that are Santong and Pesangrahan Village. The villages were chosen because of defined as the location of the MDK program by BTNGR since 2007 - 2015.

The approach used in this research was a case study using a descriptive method and analyzed qualitatively and quantitatively according to the research needs. The data collection process was done through observation, focus group discussion, document analysis and interviews with the key informants [13]. Some of the informants were selected by using Purposive Sampling based on the characteristics that developed [14].

In this research developed a framework based on Institutional Impact Theory that adopted from [15,7] with reference to three main components there are situated, structure and institutional performance.

The situation as a source of community interdependence of TNGR resources was analyzed using a preference analysis [16] and community characteristics included the history and livelihood of the community [17]. The analysis of institutional structure includes the community's Property right on TNGR resources using *bundle of rights* theory [18] and the MDK implementation rules were analyzed using *multiple levels of rule making* [11,19]. The performance of MDK implementation in TNGR was analyzed using design principles [11].

3. Results and discussion

3.1 The Situation of TNGR Management Issues

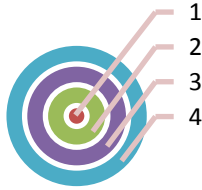
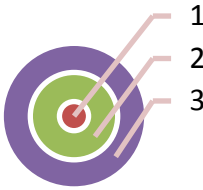
The situation (*situation*) is a description of the inherent characteristics of the resource [7]. The situation is defined as a characteristic that is a source of interdependence which will establish an individual or group relationship either cooperation or conflict [20]. The situation in this research context is interpreted as a source of community dependence on TNGR which is

analyzed using historical analysis, community livelihood and community preference. The form of the characteristics can be a phenomenon of *Incompatible in use* nor *High exclusion cost*.

Incompatible in use is the use of resources with a specific requirements cause other activities cannot be included. [21] revealed that two or three activities are said to have incompatible properties if one activity selected, due to technological requirements, then other activities are not included. The determination of the national park zone has an incompatibility character because of the terms or conditions in the utilization of resources which is regulated in the zonation system causes some activities of the local community that can be included. The determination of zones that are not in accordance with the community preferences based on their history cause an incompatible situation in TNGR.

This incompatibility situation occurs in defining zones (the jungle and traditional zones), wherein those zones the community have a high preference in using TNGR areas for farming, taking timber and grazing based on their historicity. However, on the other formal rules of national park management, those community activities can not be included as regulated by PERMENLHK Number 76 Year of 2015 about The Criteria of National Park Management Zones and Management Block of Nature Reserve, Wildlife Reserve, Forest Park dan Natural Tourism Park.

Table 1. The Community Preference for the Utilization of TNGR Area

The Benefit Categories	Priority Order		Description
	Santong Village	Pesangrahan Village	
Taking the Fern Plants	4	4	
Taking the Rattan	6	8	
Taking the Firewood	3	6	
Hunting	5	7	
As a water source	1	1	
Taking the wood	2	9	
Taking the Non-Timber Forest Products (HHBK)	7	5	(jackfruit, durian and others)
Taking the grass	-	3	
Farming (Paddy)	-	2	
National Park Zone	Jungle Zone	Traditional Zone	
Tribal Diversity	Heterogeneous	Homogeneous	
Accessibility to the Area	±1 Km	±500 M	
Orbitation from the TNGR Area			
	<ol style="list-style-type: none"> 1. National Park 2. Production Forests 3. Community Gardens 4. Settlements 	<ol style="list-style-type: none"> 1. National Park 2. Community Lands 3. Settlements 	
Elevation	525 Masl	700 Masl	
Rainfall	1813 mm/year	2000 mm/year	

Source : Ichsan *et al* (2017)

The incompatibilities situation has an impact on the form of MDK Program interventions that have been implemented during this time. There are different forms of MDK program

intervention with the characteristics and preferences of the community which one of them is due to the limited provisions of national park management that impact of the failure of MDK program implementation in TNGR.

High exclusion cost is the inability to limit the use of the resources from those who did not contribute to the production costs issued by the manager. In this situation almost all TNGR areas have been administratively surrounded by various rural community activities, included the village that became the location of the research (Figure 1). The data from [22] shows that in 2015 more than 300 hectare area of TNGR have been encroached. Forest Watch Indonesia in Potrait Data for Indonesia Forest State in 2000 and 2013 reported that every year in TNGR area is deforested 400.54 hectares/year [23,24]. On the other hand, the situation also creates prolonged conflict between communities and TNGR managers related to access restrictions which is applies to the community. Some examples of conflicts also occurred in the Pesangrahan Village in 2007 and in Santong Village in 2003.

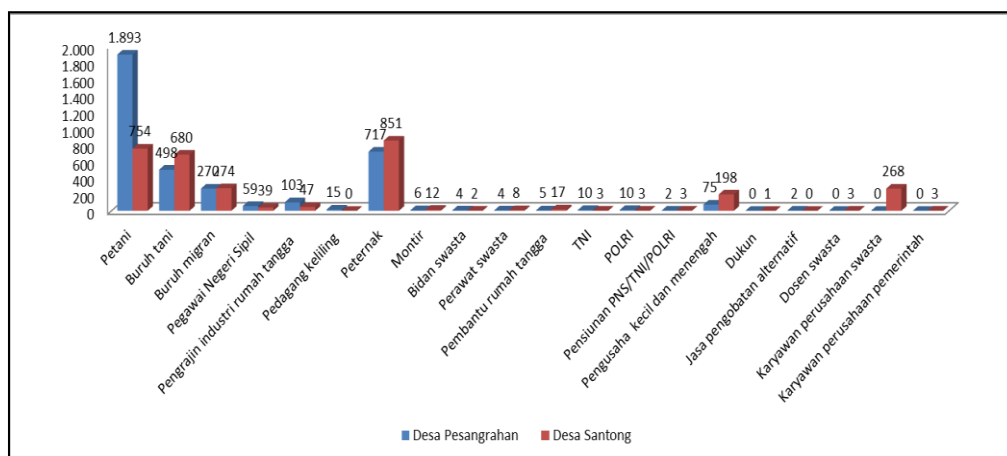


Figure 1. Distribution of Community Livelihoods in Pesangrahan dan Santong Village (Processed from Village Profiles Data 2014)

Facing such situation, the existence of local communities should be considered in the management of TNGR, because besides they have a long historical attachment to the TNGR area, they also have a source of livelihood which is not infrequently associated with TNGR area (hunting, grazing, taking the water dan others). This situation requires an appropriate institutional arrangements and intervention forms so the resources can be maintained and the community interaction that has been built for a long time may persist.

3.2 The Structure of MDK Management

The structure is presented descriptively to the community rights of the resources and the rules that used in the implementation of MDK in TNGR. The regulation of rights in land use in TNGR becomes a strategic instrument as a framework for fields management activities. [25] provide a view that the regulation of the rights to the resources will determine the incentives the parties to conserve the natural resources. The existence of clarity of rights will affect the behavior of the resource user on these resources, because right is one of the social control instruments that can regulate interdependence of the community and reinforce who gets what [7].

The result of the research showed that the implementation of the conservation village model in TNGR refers to the property rights that defined by formal government rules. However, the rules did not regulate the community access to the resource in TNGR. During this time, the MDK implementation is focuses on the activities which is providing assistance in the form of material and production equipment to the communities targeted for MDK implementation. Meanwhile based on the result during the research, showed that during the community residing in the location of MDK implementation tend to utilize the TNGR area for various livelihood

activities. The description of the community rights to the resources in TNGR according to the concept of Schlager & Ostrom (1992) can be viewed in the following table.

Table 2. The Formal Rules of National Park Management and The Realities of Resources Use in TNGR

The Arrangement Rights (P.76 Year of 2015)		Situation Characteristics	
Location		Santong Village	Pesangarahan Village
Zoning		Jungle Zone	Traditional Zone
Enter the Area		Allowed	Allowed
Picking Up the Products		Not Allowed	Allowed
Manage		Not Allowed	Not Allowed
Exclusion		Not Allowed	Not Allowed
Divert		Not Allowed	Not Allowed
The Reality	-	The community is not only able to get into the area but also utilize the area to get timber forest products, non-timber forest products and hunting	- The community have already done land management even have already done the land transfer process. - There is no structuring of utilization mechanism.
The Impact	-	Expulsion community by the TNGR officers because they are pervasive - Community arrest for forestry violations	- Expulsion community by the TNGR officers because they are pervasive - Community arrest for forestry violations

Source : Primary Data Processed in 2016

According to Table 2 showed that the community's position in the TNGR management is less accommodated in the formal rules of conservation area management. The available formal rules are only accommodating the community access rights to traditional zone in the form of collecting the non-timber forest products. This situation resulted inequality of filed management (Formal Rules vs Reality).

3.3 The Rules of MDK Implementation

Ostrom [11] divides the rules in the management of common property resources into three levels, there are operational rules, collective rules and constitutional rules. In general, some of the regulations that identified in the relation with the MDK implementation in TNGR include : Undang-Undang No 5 Tahun 1990, Peraturan Pemerintah No 108 Tahun 2015, Peraturan Menteri kehutanan (PERMENHUT No 67/2011, PERMENHUT No 16/2011, PERMENHUT No 03/2007 dan PERMENLHK No 76/2015) and Guidelines and reports on MDK implementation at TNGR [26].

In the implementation on the field, the MDK implementation rules in TNGR are only available at the constitutional level and partly on the collective level. The MDK implementation rules that are designed, did not reach at the operational level where the direct interaction between the community and the forest resources occurred. The following table provides an overview that the applying process of the rules is less appropriate to the situation which occurred in the field.

Table 3. Level of MDK Implementation Rules in TNGR

Rules Type	Result	Impact
Constitutional Level	<ul style="list-style-type: none"> - The national park management rules only regulate the community access in traditional zones in the form of collecting non-timber forest products (no community access arrangements found in other zones) - The MDK implementation rules did not regulate the limits of the area utilization by the community - Between one rule and other rules are different regarding definition and the scope of the implementation of conservation village. - There are no rules that explain the mechanism of stakeholders involvement in MDK decision making. - The formal rules of TNGR management are command and control and the local community are positioned as user. 	No clear mechanism of MDK implementation in the field.
Collective Level	<ul style="list-style-type: none"> - The collective level rules is only found in Santong Village (MOU). The rules did not regulate the land utilization by the community. - There is no established rules outlining the implementation of MDK in the field (form of utilization, benefit cost sharing, participation process). - There are no sanctions imposed in case of violation of the agreement that has been made. 	Ineffectiveness of collective rules that have been made.
Operational Level	<ul style="list-style-type: none"> - There are no operational rules that regulate the MDK implementation in both village, both the utilization rules, enforcement of sanctions, monitoring rules, and the rules related with the benefit cost sharing for the implementation of such activities. 	The MDK implementation is not organized and controlled.

Source : Primary Data Processed in 2016

3.4 The Performance of MDK Implementation

Conservation Village Model is included as an institutional form, because it contains various mechanisms and rules that are made to ensure the operationalization of field activities. [8], suggests that institution is the rule of the game which directs the actors to achieve the common goals. The existence of institutional can inhibit the emergence of opportunistic and adverse behavior so it's been easy to predict the human [9]. However, many of the institutional design that is built cannot be sustainable and cannot be an incentive for the natural resource sustainability.

The critical problem of the institutional establishment lies in the issue of institutional sustainability and the effectiveness of its management. [11] formulates the criteria in an institution that can last a long time. These criteria include clarity of territorial boundaries and management, suitability, collective regulation, monitoring, implementation of sanctions, conflict resolution mechanism, recognition of the rights in managing and linking the management system. Furthermore, in this research these criteria are translated into the matrix of criteria and indicators adapted from [27] as described in the Table 4 below :

Table 4. The Results of MDK Institutional Sustainability Assessment

The Principle	The Assessment Indicators	The Value	
		Santong Village	Pesangrahan Village
- The Clarity of Boundaries and Management	- Clarity of utilization area in MDK	1	1
	- Clarity of MDK rules for groups	1	1
- Suitability	- The suitability of costs and benefits distribution	1	1
	- The suitability of MDK rules with the economic conditions of the community	2	2
	- The suitability of the program and the community preference	1	1
- Collective Arrangements	- Meeting intensity	1	1
	- The participation of groups member in each meeting	1	1
- Monitoring	- The monitoring was active	1	1
- The Application of Sanctions	- The mechanism of sanctions is clear and enforceable to the offending parties	1	1
- The Conflict Resolution Mechanism	- The existence of rules and procedures for resolving conflicts	2	1
- The Recognition f Rights Regulating	- The community rights in the forest resource management get the recognition and protection from the government	1	1
- Linkage of Management Systems	- The linkage between MDK rules at the operational, collective, and constitutional levels.	1	1
The Score		14	13
The Ideal Value		36	36

Source : Primary Data Processed in 2016 (Score 1= less, 2 = adequate, 3 = good)

The result of analysis of the institutional sustainability by using eight criteria developed by Ostrom (1990) showed that the level of continuity of the MDK implementing institution both in Santong and Pesangrahan Village included in the low level of sustainability category with the calculated value of 13 for Pesangrahan Village and 14 for Santong Village. One of the factors causing the low performance of the MDK implementing institution in the field can be seen from the difference between MDK arrangements and actual sanctions in the community, which ultimately resulted in given intervention in the MDK implementation that it did not directly touch the community's need for the existence of the national park.

Based on the formal rules that apply to the management of the national park, the community rights to the resources in TNCR is restricted into the established zones, while the access reality that occurs shows the community activities in the area to fulfill their needs that had persisted ever since the area has not been designated as a conservation area. Therefore, negotiation spaces between stakeholders are needed in the context of rights arrangement and access and control mechanism to these resources. One of the alternatives that can be done the behavior of each stakeholder to produce a better performance so it is necessary to change institutional elements as stated by Pakpahan (1989) which includes three main elements, that is :

a. *The Jurisdictional Boundaries*

The jurisdictional boundaries are conceptually the boundaries of the territory boundaries or authority boundaries that owned by an institution or both, the jurisdictional boundaries determine who and what which is covered by the organization. In the context of MDK implementation, the jurisdictional boundary arrangements should consider the characteristics of the local community situation. The incompatibility situation and the high exclusion costs need to be handled by providing firm and clear arrangements regarding institutional mechanisms that includes monitoring rules (participatory), cost benefit sharing rules, sanctions rules, conflict resolution mechanism, a recognition mechanism for the community rights [11].

b. *Property Right*

Property rights explains someone's relationship with others through recognition of the resources. Rights in the social control and regulate the interdependence of the community and reinforce who gets what [7]. The formal rules of TNGR management that limits the movement of the community to the resources has created an incompatibility situation which results in frequent of conflicts and forest violation activities in the area. Therefore the presence of MDK program should be able to provide negotiation space between the community and the manager in reducing the impact of the incompatibility, that included building an agreement related to the arrangements of community rights in the utilization of TNGR area and joint arrangement of national park zonation. [11] revealed that the clarity of management boundaries is one of the components that will determine the *CPRs* institutional sustainability.

c. *The Representational Rules*

The representational rules regulate the issue of who is eligible to participate in what in the process of decision making. The rules of representation that used in the process of decision making will determine the form of decisions taken that will have an impact on institutional performance [28]. The analysis result of this research showed that there are no rules regulating the role of stakeholders in the decision making in the MDK implementation. Therefore, it is necessary to revise the regulation that is able to accommodate the role of the stakeholders in guarding the MDK implementation at all levels, both constitutional, collective and operational levels. So the institution that is built can inhibit the emergence of opportunistic behavior and harm each other so the human behavior in maximizing their welfare is more predictable (Kasper & Streit 1998).

4. Conclusion

The The difference between program intervention and the community characteristics showed the incompatibility of MDK management in TNGR. The arrangement at the constitutional level did not guarantee the effectiveness of program implementation in the field, if the constructed structure did not accordance with the local characteristics and did not run simultaneously at all levels are arrangements (constitutional, collective, or operational). This has an implication for the low institutional capacity in guarding the implementation of the MDK program in TNGR. It is necessary to restructure the MDK institutional elements including jurisdictional boundaries, property rights and representative rules which are able to adapt to the community characteristics and the other stakeholder's interest.

The development of MDK programs requires comprehensive efforts in encouraging its optimization in the community. To encourage optimization, some suggestions that can be submitted in this research are as follows :

1. The development of the conservation area program should be able to adapt to the local characteristics by strengthening the existing institutions and building the effective control systems for the actions and the property rights prevailing in the community.

2. Policy revisions are needed related to the organization, working procedures and mechanism of national park management, which are able to accommodate the needs of empowerment as a whole with a specific, clear, and directed structure.

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