

BENEFIT SHARING SCHEMA FROM THE FOREST: IDENTIFYING POTENTIAL DISTRIBUTIONS TO CUSTOMARY COMMUNITIES IN TELUK BINTUNI DISTRICT, INDONESIA

Jonni Marwa^{1,2}, Mustofa Agung Sardjono¹,
Afif Ruchaemi¹, Simon Devung¹, Reinardus Liborius Cabuy²

¹Faculty of Forestry, University of Mulawarman, Jl. Penajam P.O. Box. 1013 Samarinda, East Kalimantan, Indonesia 75116

²Department of Forestry, Faculty of Forestry, University of Papua, Jl. Gunung Salju Amban, Manokwari, West Papua Province, Indonesia 98314

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Abstract

This study identifies the benefits that traditional communities receive from the tropical rain forest in New Guinea, Indonesia. In this study, various benefit sharing schema developed by forest concession holder are assessed to understand the precise outcome compared to traditional welfare solutions. It further aims to identify benefit sharing schemas applied by concession investors in the forest sector and assesses these schema based on equitable principles. A questionnaire and semi-structured interviews were used to collect data from traditional communities, concession holders, and the government. Interviews and field observations were randomly conducted and then analyzed for both quantitative and qualitative descriptions. The results indicate that there were five benefits sharing schemas i.e., those based on financial schema, based on the market, based on infrastructure, based on social management, and based on the transfer of knowledge and technology. Overall, all the schemas that were developed did not fulfil the same criteria. However, there were only two schemas that were considered to be equal and efficient: the financial based-schema and infrastructure based-schema. This is indicated by the larger number of criteria and requirements that they fulfil. Yet, all the schemas still present various conflicts either between customary communities and the government or between the communities and investors.

Keywords: benefit shearing schema, customary community, equitable principle, forest concession, investors

INTRODUCTION

The Teluk Bintuni district is considered to be one of the biggest forest areas in West Papua province with a total forest cover of 2,062,134 hectares, or about 22 percent of the total land area in the province. The production forest constitutes 81.87 % of the total forest; however it is subject to a high rate of forest conversion. In 2012, the district had eight forest concession permits intended for logging, a high number compared to the number of logging permits granted to other districts in West Papua province (Dinas Kehutanan, 2012).

So far, forest and land occupations have been granted by virtue of customary right to traditional communities living around the forests (Li, 2001; Morgan, 2004). However, the legally mandated contribution and compensation schemas were not paid equitably to the traditional forest communities according to current standards (Campese, 2012). Forest benefits for communities should not simply consist of a compensation schema based on standard economic calculations, but should also consider the necessities and extended living standards for local communities, to encourage their active involvement in the use of lands and equal treatment (Suyanto, 2010). At the community level, several internal conflicts often occur due to unfair distribution of forest management.

For four decades, the forest management has given local customary rights to investors in a manner that was neither transparent nor respectful toward local communities, leading to a structured diminution of the direct income sources from the local communities. Forest concessions allocated by the government in the early years were largely granted to foreign investors, who collaborated with forest concession holders, typically military chiefs. Forest concession holders are only the receivers of the ultimate decision letter issued by the government, which provides them with capital to pay their taxes. As a holder, they become intermediaries between the government and capital holder. Such a circumstance eventually provides money from rent, received from partners (Kammen, 1991; Kartodihadjo, 2006).

The customary community commonly refers to indigenous people who live in the surrounding environments or forests, and who, over generations have been receiving forest benefits as their owner. This pattern of rule is traditionally associated with people's communities or tribes in order to maintain sustainable management of surrounding sources (Wicomb and Smith, 2011). Over the course of several decades, the customary community's

decisions have been played a fundamental role in managing forest and natural resources.

Unequal and unfair distribution has led to a loss of income sources for local communities. This has raised poverty rates, increasing the difficulty of even meeting daily necessities and generating social economic and welfare-related issues in the customary communities. It is important to address the following questions: What is the type of benefit distribution carried out by concession investors in the forestry sector toward local customary communities? Has such distribution contributed equitably to the local communities? Who are the actors related to benefit distribution, and what kind of roles can be played? These questions are associated with the aim of this study, namely: identifying shared benefits administered by investors, and assessing the shared benefit schema from the perspective of equality. The primary objective of this study is to identify the compensatory benefits provided by active forest concessions to the surrounding communities of Teluk Bintuni district of West Papua province. Through this study, information of benefited pattern sharing schemas will identify and provide a long run solution for the forest and community around the area as well as government to set up a better management.

MATERIALS AND METHODS

General condition of study area

This study was conducted in Teluk Bintuni district of West Papua province, located in the northern part of the island of Papua. The region, in general, is classified as a low-land, with a few areas largely consisting of mangroves. The region has two seasons: the dry season (June to September) and the rainy season (December to March), influenced by the Australian continental, Asia continental, and Pacific Ocean air masses. The total population of the district is about 56,597 people, with a working age population of 35,068 people (Teluk Bintuni in figure, 2014).

Study location was chosen purposively due to it has been known for its forest concession activities since two decades ago, and it has the largest forest concession areas compared to other districts in Papua Barat province with the total concession area of 2 million hectare and allow about 14 actively operated forest companies. There are two major tribes that purposively considered for socio-cultural data collection such as Mairasi and Sougb. Data was gathered in two months during the summer of 2013.

Data collection

Targeted area

This study focused on the two tribe-based communities namely Sougb tribe who occupies the north part of Teluk Bintuni district and Mairasi tribe who live in the south part of district. There were four sub-districts have chosen for data gathering: sub-district of Bintuni, Manimeri, Arguni bawah, and arguni atas. From these four sub-districts, villages are selected for data collection by considering: all the villagers are not fully gaining benefit from the existed concession company or don't have right of concession land as mandated by the rule to get compensation schema. Seven villages are chosen to collect data that consisted of Lama, Bina Desa, Tirasai, and Tihibo villages which are represented Sougb tribe and Kensi, Maskur, and Urisa represented Mairasi tribe in the south.

Targeted respondents

Data elicited from respondents are classified in three classes of source: the first is key informants (KI) who has been chosen due to their position/experience was considered enough to elaborate into detail the whole aspects related to the benefited share based on the customary right. KI in this study are agencies in the district level, head of villages, customary leader, head of clan, and company leader. About eight KI represented Sougb tribe and nine represented Mairasi tribe in

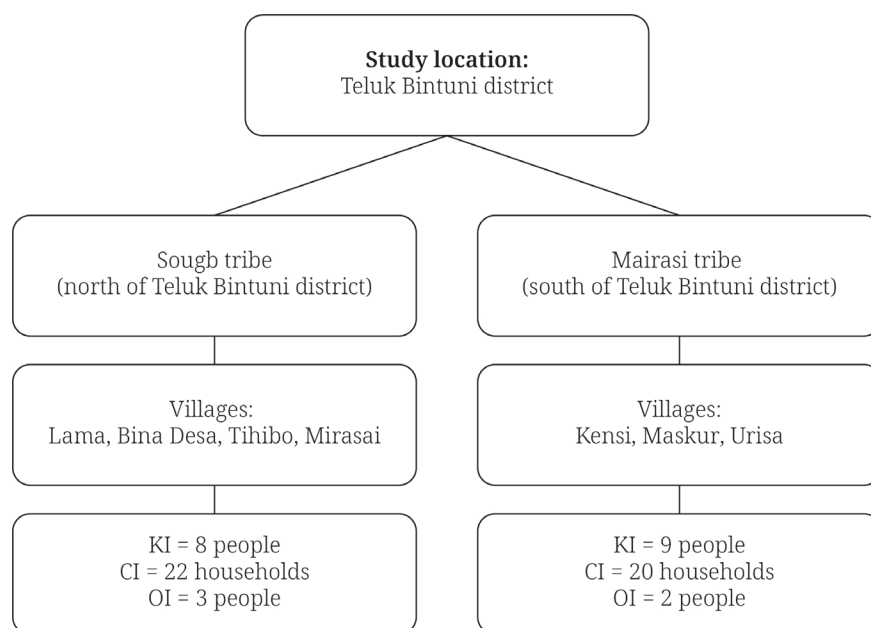
the south. The second is case informants (CI) are part of family who receive compensation due to land ownership. CI was chosen purposively with the total of 23 households and about 10 migrants who live together over generations that represented two major tribes (Sougb and Mairasi). The third was opportunity informants (OI) who responsible for verifying all information gathered from KI and CI. OI consisted of experts, NGO's and three public figures from both representative tribes.

Data gathering

Source of data in this study are divided into two sources: primary data means all data are taken directly from targeted sources though individual direct interview based on classes that made. All data are based on developed questionnaires and several related issues which still relevant in the context of benefited schemas to the communities. Besides, secondary data are gathered from multiple organizations, governments, and other existed agencies that provided valuable information regarding benefited sharing schemas in Teluk Bintuni district.

Data Analysis

Data acquired from the field were then analyzed using the descriptive method and presented in tables. To assess the economic benefit for the communities, information about money that was given or paid by the forest concession holders



1: Distributed schema location and sources of research information

by way of compensation was included. The benefit value is calculated as the product of volume of timber chopped and minimum compensation price [NM = V × P]

Where:

NM = Benefit value (IDR/m³)

V = Volume of timber (m³)

P = Minimum compensation for each timber species (\$ USD)

To assess the equity of the benefit-sharing activity, we adopted the method of equal benefit sharing from Mohhamed (2011); Citing Tornblom and Vermunt (2007); Wagstaff (1994); Maiese (2003) have been applied in Tab. I.

These principles, while noting when more requirements are fulfilled, will automatically allow the benefit development schema to be equal and efficient.

RESULTS AND DISCUSSION

Benefit distribution schema of the natural forest by forest investors

Natural resource utilization carried out by investors in the forestry sector in Teluk Bintuni has resulted in a number of benefits to local communities. The general benefit to the communities was provided through a number of schemas such as financial base, market base, infrastructure base, social management base, and technology and knowledge transfer base. Sabogal and Cedergren (2017) indicated a better management of forest concessions will bring multiple benefits in both, direct and indirect way from environmental to social aspects for surrounding populations and society in general.

Financial-based schema

The financial-based schema in general has been carried out by most investors in Papua. Such a schema is related to the praise from local communities that take the shape of the monetary fund. In this study, there are several financial-based activities that have been undertaken by the owners of forest concessions in Teluk Bintuni for local customary communities. The mechanism of the compensation and payment for timber in Teluk Bintuni district is made up of two systems: 1) direct payment system and 2) advanced payment system as presented in Fig.2.

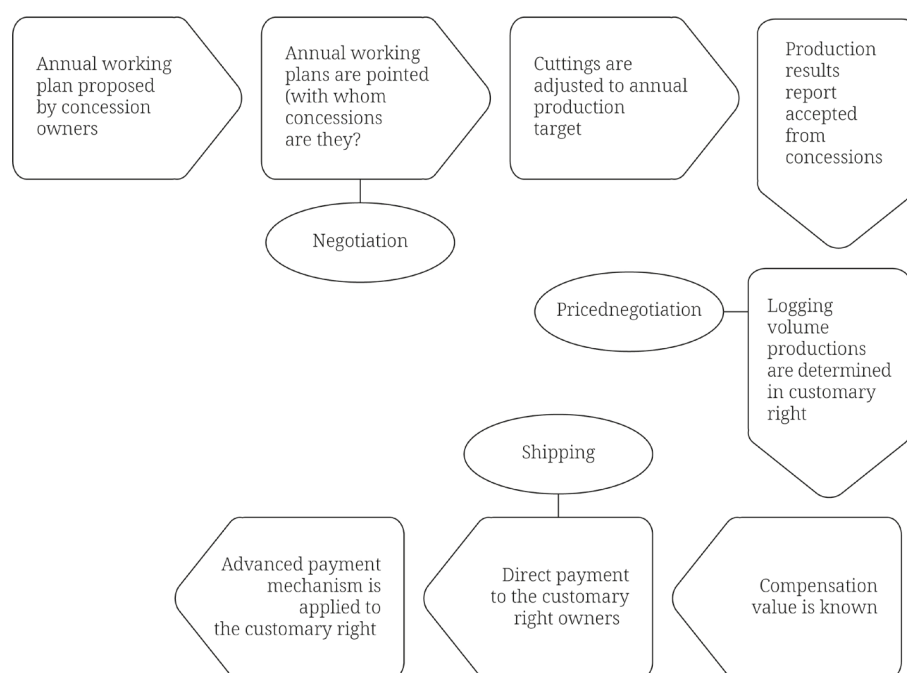
Direct payment will be distributed directly to the communities based-management through local community leaders and who traditionally claimed to hold a full responsible for the community management in the village (Karsenty, 2007). The direct distribution given to communities each year that was intended for all daily activities conducted inside the village. In addition, advanced payment is designed to provide additional income such as money and other necessities required from the concession companies. In general, direct financial-based schema distribution given by concessions was more tangible and can be used by communities instantly. Therefore, the schema was more preferable for the handful of community members. However, poor financial management led to the uneffective use of money among communities were seen among communities surrounding the concession companies. Milne and Niesten (2009) noted the weakness of direct payment schema that is likely happen such as weak governance, limited human capacity, and potentially lead to conflicts among community members.

I: Fulfilled requirement for equal benefit sharing

Required fulfilment	Benefit sharing schema					
	A	B	C	D	E	F
Equality	+/-	+/-	+/-	+/-	+/-	+/-
Fairness	+/-	+/-	+/-	+/-	+/-	+/-
Needs-based	+/-	+/-	+/-	+/-	+/-	+/-
Right based	+/-	+/-	+/-	+/-	+/-	+/-
Pro poor	+/-	+/-	+/-	+/-	+/-	+/-
Transparency	+/-	+/-	+/-	+/-	+/-	+/-
Additionality*	+/-	+/-	+/-	+/-	+/-	+/-

+ = requirement fulfilled; - = requirement unfulfilled

*The situation in which local communities are able to get money for their development program from the concession company



2: Compensation payment mechanism of customary community

II: Type and benefited value from the financial-based schema

No.	Type of benefits	Benefited value estimation (\$ USD)	Recipient of benefit
1.	The customary ceremony of concession area (realized in 2010, 2011, and 2012).	636	Customary communities
2.	Customary right compensation on timber collected in the concession area (realized in 2010, 2011, and 2013 of 64,597.61 m ³).	574,869	The owner of the forest concession (Customary community) consist of Tira, Iba, Tubes, Teinom, Inden, Asmorom, Meci, Horna, Yetu, and Ainusi).
3.	Grant and village levy (realized in 2013).	2,873	Athisba, Tihibo, Pasamai, and Manimeri villages.
4.	Grant for churches (realized in 2013).	707	Manimeri village
5.	Scholarships	3,217	Customary communities
6.	Fresh grant for customary communities.	4,850	Customary communities
Total		588,355	

Source: PT Youtefa Sarana Timber and PT.BUMWI companies

Market-based schema

Companies give access to communities sell their own agriculture products, and non-timber forest products yielded from the surrounding forests to the companies. These agriculture products consist of vegetables, potatoes, meat, especially that of deer and pigs. The companies directly buy the products, or exchange them against other valuable commodities. In general, the biggest average income around the concession areas is obtained from coastal and sea commodities such as crab

and fish, which account for about \$1,612 USD per annum, or approximately around \$134 USD per month. Additionally, the surrounding communities often sell their non-timber forest products such as deer. The average income from this sector is about \$1,209 USD per annum or approximately \$100 USD per month. However, this mechanism was ineffective inflicted by lack of market management from local communities. It rather should be generating numerous new local entrepreneurs engagement for supply chain of food distribution from the surrounding areas. Such a prospect will

be more profitable for generating additional income and prosperity into the surrounding local communities. Wiman *et al.* (2011) highlighted the involvement of local villagers in concessions as business partners rendered an impact towards economic development in Zambia.

Infrastructure-based schema

Quantitatively, there is the potential for the development of roads in the forest areas, which is good for accessibility to remote living areas. The infrastructure built using concessions for communities include roads, bridges, and provision of electricity. Once the concession permits are invalidated by the government, the facilities are automatically taken over by the government, and it becomes a district or provincial road. Through the road connectivity to district or villages, it will be easier for communities living in these districts and villages to fulfill their economic needs and carry on other daily activities. In addition, transportation costs will be less than before the roads were developed. The low-cost transportation will, in turn, bring in a positive effect by increasing income for the communities by way of selling their various agriculture products even though the result is not really significant economically (Iek, 2001). From a social perspective, developing infrastructure such as roads and bridges save both cost and time for communities in terms of their access to the market, banks, hospitals, educational centers, and other social services. Starkey and Hine (2014) pointed out the importance of infrastructure for rural areas isolated by distance and for elderly as well as people with disabilities to get better access of health services.

Social management-based schema

Social management schema is considered to be a sharing schema of natural resource benefits that are obtained by the local communities or customary right holders in line with social activities. Such activity is carried out in villages and is mandatory for the concession holders to undertake. The real physical benefits obtained and used by the communities are the portable power generator, outboard motor, fuel, and other physical goods for small-scale constructions.

Social management schema carried out by forest concession companies are classified into the routine and incidental program. The routine program is scheduled activities over the years, and in the implementation, the average realization is

more than 50 percent of the target. In a year, social management schemas spend between \$601 USD and \$1,689 USD. The benefited value process receives less money than from compensated payments. However, from a social perspective, the benefit obtained is quite significant due to coverage of a wide range of communities living around the concession areas. FAO (2018) indicated a necessary support such as operational and technical needs including logistics, and tools for local communities to underpin their daily activities as an essential mechanism for concession companies to be more accepted into the local communities.

Transferring knowledge and technological-based schema

One of the main roles in the forestry sector in developing the regional economy is to create a new employment sector. Therefore, the companies bring in schema of transferring knowledge and technology to engage more surrounding communities to be involved in their ongoing projects. Quantitatively, there is no significant difference between the number of employee based on their educational backgrounds between bachelors and baccalaureates. However, technical employers gradually reduce. Most employees with a bachelor qualification have worked in the companies for more than 10 years, but the number is shrinking. The present trend shows that most bachelors prefer to work "outside the forest." The situation is technically categorized as jeopardy towards biodiversity and forest regeneration, as the few existing employers do not understand the need for better forest management. Rather, seems like existing employers are in the business only for money and profit, as they allow for cutting down of trees, without considering the preserved aspect of the forests. One of the reasons found that local employees were not ready mentally to compete with outsider employees and lack of educated background has reduced their confidence to work in the concession company. Rather, most local employees literally know that they will get money from multiple compensated schemas existed between concession companies and forest land owners. Even though less preferred work for the locals, it was still contribute for the income for some household in the surrounding areas. Karsenty (2007) provided a real picture of forest concession income and contribution toward the decrease of unemployment rate in several African countries.

Natural resource benefited distribution based on equitable principles

With reference to the equally benefited sharing principles approach indicated by Mohhamed (2011); Citing Tornblom and Vermunt (2007); Wagstaff (1994); Maiese (2003) it can be seen that there is no equal distribution of benefit in each schema whereas most of the fulfilled criteria are not achieved. There are only two that can be considered to be equal which are: financial-based schema and infrastructure-based schema indicated by the number of criteria proportions that fulfill a large part of requirements (Tab. III).

Financial-based benefit sharing schema has been efficient as there is a transparent practice of compensated payment between the company and community. The benefited receiver is only based on the rights regarding concession areas. Compensation is given among communities who have legal customary rights based on the power of each individual. Over the course of the years, there is an increase in number of timber compensated price based on the Governor decree (Governor Degree No. 144 in 2007).

Among communities, however, the equality aspect is not present. Compensated money received is not equally distributed among the customary right owners. There is only transparency in sharing the money among customary owners after it is given by the company. In this phase, the likelihood of inequality of sharing the money among customary community leaders is likely to happen. On the other hand, the poor and vulnerable are not paid attention to, leading to

rise in poverty in villages to become poverty in villages. This means that a group of communities are likely to be separated by right (heterogeneity in right). Such a condition is different compared to the benefit sharing practice in Sarmi district of Papua province. In Sarmi, the benefit sharing schema is based on Regency Degree No. 40 in 2007, 65 percent is owned by customary right, eight percent constitutes owners/cutting block/logyard, seven percent for development, while the rest is intended for roads, material for roads, base camp, and loading points. Before the Degree, the customary right owners obtained almost 70 percent, with material for roads, base camp, and log yards, each constituting seven percent, while customs constituted two percent (Marwa, 2010).

The scholarship in this schema is exclusive for the young generation of surrounding communities without a selection process based on their academic evaluation. This leads to the potential of duplication of benefited flow. From a social outlook, the schema provides an assurance of investor engagements in upholding respect towards local customary rights. On the other hand, it ignores the continuity of the local living process and threats to the natural forest and biodiversity in the region.

The market-based schema was carried out by each individual (fairness) involved in agriculture activities with a number of the noncontinuous trading schema. The consequence is that incomes were generated only by people who work in their agricultural lands. The activities are done if there is an urgent necessity to travel to the company's base camp. Moreover, this schema also provides access to communities categorized as vulnerable

III: *Benefited sharing requirement based on equitable principle*

Criteria	Benefit sharing schema				
	Based on money	Market	Infrastructure	Social management	Transfer knowledge and technology
Equality	–	–	+	+	–
Fairness	+	+	–	–	+
Needs-based	–	+	+	–	–
Right-based	+	–	+	–	–
Pro poor	–	+	+	+	–
Transparency	+	–	–	–	–
Additionality*	+	–	–	–	–

+ fulfilled requirement; - unfulfilled requirement

*The situation in which local communities are able to get money for their development program from the concession company

(pro-poor) due to a lack of boundaries for both sellers and the types of commodities sold. Income from the selling aspect is obtained from a number of existing products and the prices in the companies (transparent). The market-based schema is significantly different compared to other schemas implemented in other countries such as payment for ecosystem service (PES), clean development mechanism (CDM), carbon voluntary project, REDD+, and others related schemas (Nhkata, 2008).

The main importance of infrastructure such as roads and bridges categorized as public service facilities is that they can be accessed by all community groups (equality) either inside or outside/around the forest. Road and bridge access has the potential to overhaul social welfare. A handful of basic necessities of surrounding communities can be fulfilled by access to infrastructure such as roads and bridges (need-base). Main roads, branch roads or even small roads developed by companies are a part of forest concessions owned by customary right owners inside concession areas. The result of this is that there are numerous claims by companies on account of land acquisitions. Roads and bridges that are developed, will provide a direct access to the poor or vulnerable communities (pro-poor).

Social management is part of continuity of sustainable natural forest management as per

Ministry Degree of 177/Kpts-II passed in 2003, which covering the criteria and indicators of sustainable forest management in management units. These become company mandates. The schema has greatly contributed to equally sharing benefit to all community groups. However, it is not based on necessity, as the designed programs do not have a bottom-up approach. This does not cater to the real basic necessities of the communities which do not participate. From the payment side, the communities do not know exactly how much money is being allocated towards social management activities every year (not transparent). In practice, the allocation of money towards social management activities is far less ($\pm 2\%$) compared to compensation payment (98 %). The lower rate of benefited flow for social management activity points out that compensation is "mandatory" for concession owners as per government regulation. However, social management is classified as 'additional.' The social management program is thus, not based on necessities as it is classified as a bottom-up program.

The transferring-based schema in knowledge and technology has not been very effective in fulfilling communities' expectation inside and around the forest. Permanent employers' recruitment was carried out selectively, and it was a laborious task for the local communities to get selected.

IV: Types of benefited distribution schema and their weaknesses

Type of benefited distribution schema	Weaknesses/problems
Financial base	<ul style="list-style-type: none"> • Dominated by customary landowners, while others only obtain indirect benefits. • Compensated payment is less than the obligation to other investors such as reforestation payment. The value of compensation is an average \$6.11 USD/m³, while reforestation grant for Merbau (Instia sp.) is about \$9.19 USD/m³. In addition, the provision of natural forest payment reaches \$10.60 USD/m³. • Compensated sharing mechanism is not potentially transparent. • Scholarship allocation is not fulfilled due to academic standardization and selective process.
Market base	<ul style="list-style-type: none"> • Income from selling commodities is not continued due to lack of supply. • The communities which benefit are only those that have agriculture commodities and non-agricultural commodities that can be sold.
Infrastructure development	<ul style="list-style-type: none"> • The engagement of the customary community is rare in determining compensation schema on lands which intended for infrastructure activities such as roads and bridges.
Social management	<ul style="list-style-type: none"> • The social management grant is less transparent and its value is lower compared to compensation. • The social management program that is based on necessities is low as the involvement of the community is rare. (Low bottom-up approach).
Transferring knowledge and technology	<ul style="list-style-type: none"> • The involvement of customary communities as employees with a specific skill in the company is very low. • Employers from customary communities are dominant as labor and not permanent getting low levels of payment. • There is not much response regarding the basic necessities of customary communities. • It is rare to undertake training or other similar activities.

In addition, it is rare for companies to undertake the training of communities in various activities. A number of equitable principles are not possible to carry out in this schema, as the applied criteria are not easily accessible by the communities.

From those five schemas, customary communities have obtained benefits. On the other hand, there are several weaknesses that create problems,

and are unfair, and create the possibility of conflict (Tab. IV). There is an outsider group of community members that classified as marginalized. They are not from the local community, which has been in an area from generation to generation. Moreover, the communities outside customary rights and women obtain little or even nothing compared to customary right owner families.

CONCLUSION

There are several key points in understanding the social and economic status based on the flow of incomes generated in Teluk Bintuni district which are classified in five schemas: financial-based, market-based, infrastructure-based, social management-based, and transferring knowledge and technological-based schema. In general, benefit sharing schemas developed by investors in concession areas are not effective for all aspects. This has been highlighted by a number of inconsistencies and problems addressed regarding customary communities and concessions (owners). Three schemas had no significant contributions and benefits for local communities due to lack of management, engagement, educational background, and skill. However, financial-based schema and infrastructure-based schema have been efficient, and are considered to be equal in distributing benefits which are indicated by the number of criteria fulfilled. A direct payment method as a part of the financial-based schema had a direct contribution for daily necessity fulfillments of communities. In addition, infrastructure-based schema provided a fundamentally easier accessibility for local communities in their day-to-day routines. Over all, there are several issues (conflicts among communities, unequal distribution among communities, lack of regulation to underpin better forest management mechanism) that should be resolved in order to generate more equally benefit sharing from the forest. It is important to diminish the gaps of social welfare in Teluk Bintuni district, of West Papua province.

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Contact information

Reinardus Liborius Cabuy: reinnardcabuy@gmail.com