

Local Understanding of Forest Conservation in Land Use Change Dynamics: Evidence from the *Orang Asli Jakun* Community Living in Tropical Peat Swamp Forest, Pahang, Malaysia

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Abstract

The success of local forest conservation program depends on a critical appreciation of local communities. Based on this understanding, the present study aims to explore people's perspective of forest conservation in a context of changes in their living landscape at South East Pahang Peat Swamp Forest (SEPPSF), Malaysia. Nine in-depth interviews were conducted with Orang Asli Jakun living in SEPPSF using open-ended questions. Local communities have positive perspectives toward the forest conservation program, despite massive environmental changes in their living landscape. This study suggests that a successful forest conservation program in SEPPSF will require an in-depth understanding of the Jakun people livelihood and their needs in their living environment. Findings from this study provided an avenue for future researchers to carry out studies of the relationship between the Jakun people and SEPPSF.

Keywords

Peat Swamp Forest, Orang Asli Jakun, Forest Conservation, Community

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1. Introduction

Previous studies on various forest conservation programs and their importance from the perspectives of forest communities have been vividly documented [1, 2]. The discussion on people's perspectives toward the design of forest conservation activities are ubiquitous in the literature, and scholars have marked them as a key component for the success of forest conservation projects [3, 4]. Considering this, many scholars have contributed to the debates on what makes forest conservation attractive to local communities. Some

researchers have emphasized exploring people understanding on activities that are responsible for environmental change [5, 6, 7], while others have given evidence to the positive perceptions of forest conservation which is one of the key drivers of the success of forest conservation activities [8, 7, 2].

In hindsight, community based conservation projects should be viewed by each forest stakeholder as a collective choice bound to the question of how local communities view their environment. This is because the role of communities in forest conservation have been integral to policy makers, when it comes to human relationships with forest and its ecosystems,

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and why this relationship is important in forest conservation [9]. In many countries, where a simple formula to forest conservation is solely based on government responsibility, the debates regarding community based forest conservation are bordered around the quintessential meaning of community, who shares conservation norms, and who holds common interests regarding forest conservation. This understanding of community is integral to the pursuit of community-based forest conservation, in which the positive effects on resource conservation is determined by a set of community perspectives toward the environment [9].

Hence, people's perspectives appear to be crucial to forest conservation at local levels. In countries whereby community roles in forest care is not a popular practice, the participation of local people in decision-making regarding forest conservation should be considered by researchers, funders, project negotiators and governments. This concern for the critical role of local communities' perspectives should be seen as driver to negotiate common agreements about resource management. When members of the community believe in shared norms (e.g. the need for land to be conserved), they will produce cooperative decisions for this particular purpose, and cooperate with project developers for resource conservation [10, 11]. Furthermore, the presence of community-shared norms means that they have shared beliefs that lubricate collective behaviours in resource conservation [9]. In contrast, if peoples' views on their living landscape centred on the discourse that inclined towards the exploitation of forest resources, then there is a strong communal norm that decrees a communal action for land clearance for agriculture [11, 12].

In the context of South East Pahang Peat Swamp Forest (SEPPSF), which accounts for 60 percent of the total forest cover in the Malaysian peninsula, commercial agriculture has been seen to be dominated by land use practice in the area in the 1970s and 1980s, the time when forest conversion to agriculture reached its peak in the Malaysian Peninsula [10, 12, 13]. Today, as the pursuit to promote agricultural development is seen as the major contributor to the Malaysia's economy, SEPPSF land areas have been converted to agricultural development [14].

The Orang Asli Jakun are the indigenous people who live in the tropical South East Pahang Peat Swamp Forest [15]. General understanding about the livelihood of these people in the past can be associated to the livelihoods of hunting and gathering societies. Fish¹ and wild animals were the Jakun people typical diet. Jakun people collect rattan and medicinal plants from the forest², and clear few acres of forest land for

their own cultivation [15, 16]. However, those lifestyles are slowly diminishing because of the modernization of Peat Swamp Forest that is gradually opening up the road to oil palm plantations. The conversion of forest to oil palm plantations is immense, and its implications on the local communities are massive, including the government scheme to relocate local communities to a permanent non-traditional settlements [10, 17]. In the aftermath of relocation away from their original living landscapes, the Jakun people have been assimilated into modernity, working as wage labor and odd job, in which both are not traditional to the Jakun [18]. However, some of the Jakun people who avoided assimilation have kept their traditional lifestyle, although they now have to travel deeper into the forest to collect rattan due to the scarcity of forest products resulting from deforestation [17].

Although, the Jakun traditional lifestyle has changed due to modernization, it does not necessarily mean that all of them have stopped utilizing forest resources from the Peat Swamp Forest. Still they need food from forest to fulfill their dietary needs and collect traditional medicine derived from tropical herbs, which highlights the importance of forest conservation as its effects the livelihood of the Jakun people [10, 17]. Therefore, this study aims to explore the meaning of forest conservation from the Orang Asli Jakun people perspectives and their reflection on the changes in the living landscape of South East Pahang Peat Swamp Forest (SEPPSF), Malaysia.

2. Materials and Methods

2.1. Study Site

The South East Pahang Peat Swamp Forest (SEPPSF) covers approximately 200,000 ha of land, accounting for 60% of the total forest coverage in the Malaysia's peninsula [13, 19]. Considered the largest wetland forest in Malaysia, its rich ecosystem is crucial to the survival of thousands of endangered species, its hydrological system and flora and fauna. Due to its ecological richness combined with rich storage of non-timber forest products (NTFP) and the opening of commercial plantations, SEPPSF provides different functions to different stakeholders. Hence, an integrated management plan has become a key discussion to policy makers working on sustainable forest management issues [14].

Regarding the land management of the Peat Swamp Forest, the Pahang Forestry Department in collaboration with the United Nations Development Program (UNDP) and the Global Environment Facility (GEF) have published an Integrated Management Plan (IMP) of the South East Pahang Peat Swamp Forest. The 230 page document consists of initiatives that were thought out by several government agencies, scientists and community representatives, leading

1 Such as *baung* and *keli* (catfish), is a source of diet for the Jakun people living along the river of SEPPSF.

2 For example, *kacip fatimah* is a popular herbs used to treat pre and post menopause.

the way towards forest conservation strategies [14].

The IMP served as an opening gate for this study on socio-ecological perspectives of the SEPPSF, which aims at giving an overview of policies concerning the management of the SEPPSF.



Figure 1. Research site (marked with red circle) at South East Pahang Peat Swamp Forest area. Map and photo © 2016 Google.



2.2. Research Methods

In-depth interviews were conducted as a principal method in this study that examined the Jakun communities' perspectives on topics pertaining to changes in the local environment and ecological significance of SEPPSF. In total, nine respondents were selected using purposive sampling. An open-ended interview questionnaire was used to get richer answers from the respondents. As opposed to a close ended survey method, an open ended questionnaire allowed respondents to express opinions freely [20].

Each interview was recorded and transcribed, then coded by summarizing enormous narratives to elicit meanings from the data. Analyses were carried out to capture respondent understanding in relation to changes in their living landscape. The analytical concern was to identify commonalities in respondent experience on local environment and forest conservation. Findings from the interviews were supported by the inclusion of regular verbatim in which the words coalesced with respondents' experiences with the living landscape of the SEPPSF.

The lead researcher (first author of this paper) selected the respondents based on his knowledge of the SEPPSF and the people living around the SEPPSF. All interviewed Jakun lived around oil palm plantation, and they used to go to the forest to search for forest products. Even though they are not frequent visitors of the forest in the current time, their opinions were derived from past visits and were crucial to the formation of thoughts on forest conservation.

While respondents did not have formal education, some of them went through primary schools, and at the time of research, they were relying on wage labor for source of livelihood (Table 1). The diverse backgrounds of different respondents have been collected in line with the key feature of qualitative research, which is the contextualization of constellation of respondents' insights, reflections and ideas according to a specific socio-ecological setting.

The approach taken to analyse the data was primarily thematic. The concern was to identify commonalities and differences in the experiences and views of the respondents. The responses of



respondents were carefully organized, described, analysed and interpreted. This process helped the researcher to get respondents' in depth descriptions of SEPPSF, its living landscape and the significance of forest conservation.

Table 1. Respondents' profile at SEPPSF¹.

Name	Age	Gender	Marital status	Education	Occupation
Pak Amat	62	Male	Married	Nil	Rattan collector, fisherman
Pak Long	70	Male	Married	Nil	Not working
Achai	38	Male	Married	Primary school	Driver
Ithar	37	Female	Married	Nil	Craft maker
Limah	23	Female	Married	Nil	Not working
Azlee	30	Male	Married	Primary school	Odd Job
Tony	40	Male	Married	Primary school	Not working
Jusoh	45	Male	Married	Nil	Rattan collector, Fisherman
Hisham	39	Male	Married	Primary school	Driver

3. Results

3.1. Changes in the Living Landscape

All respondents have indicated that their local environment already went through a massive transformation as the result of land conversion to palm oil plantation. They provided strong ground to illustrate that local communities have less access to the forest for their livelihoods. For example, a man who used to go to the SEPPSF described what he knew about the changes there:

"The conversions of our forest to palm oil plantation have resulted in the changes to our living landscape. People have been detached from traditional livelihood. It is rare to see people going to the forest to search for food nowadays."

Regarding traditional livelihood, and what it meant to local communities around the SEPPSF in the past, a man who used to accompany his father to the forest said:

"In the past, most of the locals were depended on forest, they used to go to the forest to collect rattan, they cultivated tapioca² and those sources are crucial to the local livelihoods. But today, local communities have less access to the forest to collect rattan. They have also restricted doing traditional cultivation."

A woman who understands the forest by her passion, because of her dependency on it in the past, agreed to the changes in the landscape she lives in. She believed that her present living environment, where she lives in a house made from bricks is a sample of changes in the living landscape of Jakun people. She said:

"Things in the forest have changed and many people have

adapted to modern life, they go to work, they live in houses made by bricks."

All respondents stridently asserted that the locals have to follow the trend of changes so they will not be left behind. Although the rattans can still be found in the forest, the Jakun communities are not attracted to the traditional way of life anymore. Many respondents expressed that only few people now want to collect rattan in the forest. An old man who goes to forest for leisure expressed his perspectives on the changes in the Jakun communities' livelihood in the following way:

"I go to the forest for few days then I come back to the house that government made for me. When I'm in the forest, I see many of the trees have been cleared for palm oil. Today circumstances have changed. People have to take driving license, so they can drive truck, drive bus, to make a living. My friends have left their old job as a rattan collector. Most of the locals who live around the forest are adopting with the modern life. They live by the money given by the government."

Aside from the fact that all respondents generally associated the changes in the living environment with massive conversions of land, they also pointed to the government resettlement scheme as another factor that caused changes to people's livelihood. In this context, all respondents said 'we received dividend every month'. A man, the beneficiary of the scheme, who had lived in SEPPSF for 20 years said: 'Monthly dividends help villagers to cover the cost of daily expenses'. The man below enthusiastically expressed his thought on the monthly dividend and changes in living landscape.

"The locals are receiving RM800 every month. They do not have to go to the forest. Why would they go to the forest, when they can stay home and already get easy money? Government is helping the local communities, so people have no problem if the government takes the land and change our living landscape as long as they help our life. Although the forest has been cleared to give way to oil palm development, and despite that I love to see more forest, I also want good life. Changes in our village landscape are giving a positive result to local people."



Figure 2. Changes of SEPPSF area. Photo © Google.

¹ Name of the respondents are pseudonyms to protect their real identity as the research ethics.

² Tapioca is a starch extracted from cassava root.

Respondents clearly understood the prevailing changes in the forest. They accepted the reality of livelihood they experience today. They cited a well-observed statement about local communities' assimilation into current changes that affected their life. In this context, one man said 'since the land has been cleared to give way to palm oil, our communities cannot depend on the forest for living. We have to follow current trend to stay on track'

While nearly all respondents who have seen changes in the forest demonstrated strong observations on changes in their landscape, livelihood, and although most respondents reacted positively to current changes, and shared positive perspectives regarding the benefits from land conversions, some respondents made exceptional comments. The following respondents spoke about the need to keep some land for the purpose of a community plantation project. A man said:

"Before our land was taken, this area was a forest area, it is filled with rubber plantations, pineapple farms and this area used to be filled with orchards. When the government took over the land, all things gone. In my opinion, it would be nice if some lands are left for the local communities, so they can cultivate what they used to plant."

With respect to this concern, many respondents put forward a slew of negative reflections on the massive changes in the Jakun living landscape. Another man, who is unaffiliated to government, expressed that 'people may not be able to enjoy the same monetary benefit they are enjoying now, if the government decides to stop helping the Jakun in the future.' He believed that the Jakun communities would be better off if they owned the land. When people own a land, they can depend on it in the future.

"People must not too overly dependent on government's scheme. In order to survive in the future, people have to have small portion of land in order to sustain livelihood in long term. I want people to own land so they can produce foods, consume them, or earn money from selling the products. For example, if the Jakun families own 100 acres of the land. We can discuss how the 100 acres of land can be divided to each family. Each family owns 1 or 2 acres of land to grow traditional herbs, or tapioca or corns. They can reap the benefits from their own land."

3.2. The Importance of Forest Conservation

The majority of respondents indicated that the forest has declined due to land conversions, and although local communities are not depending on the forest for a livelihood as they did in the past, some respondents positively supported the idea of forest conservation. One woman, a craftmaker, stated that forest conservation is a good idea as it decrees good action and benefits human and the environment. She said:

"Forest conservation is an important action. It encourages people to be part of beautiful project that is important to reverse the adverse impact of forest degradation. I believe that forest conservation is one way for you and other young people to explore our Peat Swamp Forest. Our forest is a storage of knowledge. Forest conservation should be seen as crucial to safeguard our storage from further declines."

This positive view suggested that forest conservation is the best strategy to protect the SEPPSF and its ecosystem. According to all respondents, the Jakun people are connected to their environment, regardless of what the changes in the landscape might be. A man attested: 'local communities and local ecology are one entity. Forest is in their blood. They are connected to forest, despite the changes in living landscape.'

One passionate respondent, who described himself a nature lover, said:

"When we identify the natural ecology in the forest, we capture together an indigenous people environment. The meaning of forest can be understood as the physical environment, which is the forest, the river, animals and plants. It can also be understood as a clinic or school or market for people who live in the forest. For instance, there is knowledge about surviving in the forest. We can learn medicine from the indigenous people in the forest, who are the masters of their own environment. They know which leaves that can be eaten and which leaves that cannot be eaten. They know what types of leaves that can be used as a cure to a specific type of disease. They know what is inside the wood and what is inside the water. If we conserve the forest, we protect the people and the knowledge as well."

Regarding the protection of the forest ecosystem, a man, who frequently goes to the river at the SEPPSF for fishing, gave credence to the significance of forest conservation for the river. He said: "the river is an important ecological niche to some local communities who live along the river. If you protect its ecological function from pollution, you are saving the source of livelihood of the Jakun who live along the river".

He made a case to support his view on the significance of forest conservation to the river.

"The Peat Swamp Forest offers a wide array of benefits to some local communities. If you go to the river in the forest, you will see many sources that are crucial to the livelihood of some local communities. There are different types of fish species in the river. Baung, and Keli are one of them. Some people who go to the river catch fish for food. In the absence of forest conservation, and the protection of our river, our river and all the fish in the river will die."



Figure 3. River at SEPPSF. Photo © Google.

These positive thoughts on forest conservation, and reflections on the surrounding of the SEPPSF, had emerged from the Jakun people experiences living in the current state of the landscape. They are experiencing a huge transformation of the forest to commercial plantation. In the aftermath of land transformation, the Jakun had to resort to the decline of forest resources, including rattan and plants.

Thus, many Jakun think that forest conservation project is necessary to stem the decline of plants in the forest. A passionate man, who used to practice traditional medicine, corroborated: ‘Medicinal plants, for example, Tongkat Ali and Kacip Fatimah, in the forest have importance to human health. If no one recognizes these treasures, no one will know about their importance. I think this is why our forest resources need to be conserved.’

One respondent acknowledged the need for forest

conservation projects, and he was convinced by the Jakun people experiences with forest conservation. He planned to get locals to share their forestry knowledge with interested participants. The essence of his support for a forest conservation project is best crystallized by the following comments:

“Let me perpetuate an image of forest conservation project whereby local people participate in the planning and designing of program that aims to educate people about our local ecology. This type of forest conservation project will tell people that no matter what changes to the forest landscape, there is still way to spread message about the significance of conservation. To me, our experiences that we had accumulated from our years living in the Peat Swamp Forest are essential to forest conservation activities. Our knowledge about the forest and its ecosystem, for example what types of herbs are suitable to plant could be spread to people who want to know about the forest.”

An elderly man who was explicit in propounding his opinions regarding forest conservation project strongly consolidated his positive stance towards forest conservation: “Conservation project should be aiming at identifying what is left in the forest in order for young generation to learn what is in the forest”. His positive reflections on forest conservation activities are summed up by the following statement:

“Conservation project purposes must be something like acknowledging our forest as a heritage. It must aims to identify what’s in the forest. The other purpose is to make sure that the conservation project aims to uncover what’s in our heritage to the next generation. For instance, tree names, this tree is for what purpose, how long it grows, that kind of conservation project will benefit many people.”

A few statements were made to unearth mutual care about the state of the forest. In this regard, one respondent said: “I think I am aware of what is going on with the state of our forest and I love to take care, or manage the forest, if I’m allowed to do so”. A woman profoundly said: “If I am allowed to take care of the forest I want to create garden in the forest”. She enthusiastically talked to the lead researcher about the garden in the forest:

“I think I want to see more plants in the forest, more flowers grow in the forest, and like I said if I could, I would like to transform the forest into a garden so visitors can come to the forest and see the beauty of the garden.”

A few other respondents explicitly expressed their support to the conservation of the Peat Swamp Forest, focusing on forest conservation activities that are likely to benefit the locals. In this regard, one respondent said: “Land in the forest does not have to be conserved by letting acres of land remain

untouchable. Conservation of land must be seen as the cultivation of forest products that are available in the forest, so people can get the benefits of forest conservation". The following are some of the ways respondents highlight the benefits of forest conservation:

"Conservation for me is also to have my own land and for my young generation to have their own land. They can cultivate banana, tapioca, herbs, and so these resources are available for them to consume, to sell and gain benefits in the future."

"Imagine people go to the forest surrounded by beautiful rivers and clean streams. This is a truly an evidence of conservation. People from within and from outside the village can see the best part of the nature. This is what conservation is all about."

"By conservation, I mean I want to manage forest in careful manner, so that it is not heavily exploited. Then we can call visitors, so they come to enjoy the natural beauty of the forest. This is the kind of forest conservation that is useful, not the kind of conservation that limit activities in the forest."

In addition, conservation could also be aimed at creating designated forest areas for people to cultivate and preserve medicinal plants. In this case, conservation has to be understood as protecting plants from extinction. On this note, a respondent said: "My passion is to conserve all sorts of plants in the forest that is about to extinct". She elaborated the importance of forest conservation in the following statement:

"I hope if there is a nice little forest remained for conservation, we have to keep some parts of forest because it is normal to say that there are some Orang Asli cannot survive without forest. If there is a forest then there is rattan. We can collect rattan for making handicrafts, rattan for making mats, if there is no more forest, then no more rattan, no more collection."

Meanwhile, a few other respondents strongly believed that forest degradation is a huge loss to the nation, to local communities and to future generations. Their thoughts were best illustrated by various comments:

"I always say to my children that our forests are treasures. Our forest resources are valuable. Billions if not trillion of treasures that signify our forest including flora & fauna that can be found in our forest. If we destroy forests, if we do not use forest in a structured manner, or if the forests are not properly managed, we will lose many of the treasures at the end."

"Homes, schools, clinics and modern facilities are part of the changes you can see in villages around South East Pahang Peat Swamp Forest. Although the government had

set up for local communities modern infrastructures, and where they live now is far away from the forest, and surrounded by palm oil plantations. But the Orang Asli Jakun cannot be separated from forest ecology, forest for them is a home, they cannot break away from the place that once was very close to them."

4. Discussion

Findings from the Jakun interviews have indicated that the living environment of the South East Pahang Peat Swamp Forest (SEPPSF), and the livelihood of local people have already changed due to multiple reasons. 1) Land conversions to palm oil plantations, 2) government resettlement scheme, and 3) the dividend received every month. In light of these findings, and in the context of SEPPSF, it can be said that the Jakun are no longer depending on the forest for livelihood as compared to their livelihood in the past.

Although, we can see the changes of perspectives regarding the livelihood of the Jakun in present time, we also can claim that there were voices of concern among the Jakun regarding environmental issues in the SEPPSF. They indicated that land conversion is the prime reason for declining forest resources, but at the same time, they used a similar point to express their concern on the cost of environmental degradation, including the nation, future generation, and local communities. These feelings on the importance of forest conservation were articulated in various manners during the interview, including optimism, hope, passion and dedication. Those positive perspectives were mired in the Jakun beliefs that are pivotal to forest conservation programme in SEPPSF.

There are plenty of studies that explained why positive notions of local people towards forest conservation are important for forest conservation projects. Scholars have generated series of discourses regarding the importance of peoples' ideas in the development of forest conservation activities [21, 11, 22]. Several studies indicated that it is crucial to have institutional arrangement at the local level, including the transfer of land ownership to local communities [23]. Involving local communities in the forest management program is valuable for policy makers in the tropics to facilitate a holistic forest management paradigm [24, 10].

Considering local communities and their roles to forest management, Agrawal and Gibson have given special importance to the appreciation of people's perspectives in the design of forest conservation activities [9]. They have unequivocally postulated a strong indication that forest communities are the locus of community based forest management, and the success of conservation project depends on communal norms in which they collectively built with the idea of conserving resources in the forest [9]. The article

added that people's perspectives of forest conservation should be comprehended as collective choices bounded by collective interest of the people regarding what is best for their environment. Local collective ideas could decree collective conservation efforts because the presence of community shared norms, means they have shared beliefs that will underpin collective behaviours in resource conservation [9].

Findings emerged from this study have been the impetus for the growing needs of participatory forest management, including community forestry, community plantation program in SEPPSF, thus, reasserting previous literature on the importance of an in-depth understanding of a multitude of peoples' perspectives toward changes in forest landscapes [6, 24].

The Jakun people regard the forest as a treasure and are deeply rooted in SEPPSF for their livelihoods. Forest landscape of SEPPSF is a territory of knowledge, in which the knowledge holders are the Jakun. Therefore, understanding this local knowledge is important for the success of any conservation efforts at SEPPSF. This is because local knowledge is a systematic body of knowledge acquired by the local people through the accumulation of experiences, time consuming experimental learning, and cultural immersion in the local environment. It has helped solve local problems and contributed to the development of peoples' way of life in accordance with changing times and environment [25].

Evidence in Indonesia gave credence to this stand with regard to the importance of community perspectives. In this regard, communal perspectives provided a blueprint to forest planners for an integrated land management system. Local people provided an extensive template of the number of shrinking or growing forests, which was useful to policy makers to plan for holistic resource management schemes [5].

The collective statements provided by Jakun show supports toward forest conservation activities in SEPPSF as they want solutions for environmental degradation. Based on the insights and ideas of Jakun, and a modicum of understanding on why people's perspectives matter in forest conservation program, the authors believed that people's perspectives are important to consult for community-based forest management goals in the context of SEPPSF.

5. Conclusion

The Jakun perspective towards forest conservation is instrumental to future research on the SEPPSF and local communities due to the following reasons:

- To avoid pitfalls of conservation project due to a lack of appreciation for local livelihoods, conservation planners have to accede to local communities' experiences and insights toward the local surroundings.

- For the community-based forest conservation program to meet its goals, it is important to understand whether the Jakun people share the same goals with policy makers.
- People's perspectives are instrumental to different stakeholders who have different needs in the forest. Thus, understanding such perspectives can help all stakeholders in terms of the development of broader understanding of local land and resource use patterns.

Exploring these underlying issues can give future researchers a holistic understanding of the socio-ecological relationship of the Jakun people in the SEPPSF. It is important to note that in a context where participatory forest management is not a popular practice, local communities alone cannot be effectively involved in forest conservation activities, neither can the government provide complete solution to environmental degradation. Both the affected communities and the government have the rights to manage forest, and both are the key stakeholders of the forest. In this regard, both the Jakun community and government involvement is crucial to initiating collaborative forest management program in the SEPPSF.

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