

Essential Ecosystem Area Policies as a Means to Promote Participatory and Inclusive Conservation in Forest Landscape Governance: Centering Perspectives of Marginalized Women in Taman Kili-Kili, Indonesia

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ABSTRACT

This study analyses dimensions of participatory forest landscape governance of the Essential Ecosystem Area (EEA) of Taman Kili-Kili, Indonesia. The voices of marginalized communities, and especially women, are rarely incorporated into forest landscape governance and conservation policies. The recently established Indonesian EEA policy mandates a participatory approach, with explicit requirements to involve marginalized groups and gendered perspectives. However, on a practical level, policy formulation and application unfold in very different ways. Using a Postcolonial Feminist Participatory Action Research (PFPAR) approach, we center local communities' power relations in our analysis as a specific means for drawing out various intersectional relations to conservation areas. The study found that local communities around EEA Taman Kili-Kili have a clear interest in participating in inclusive mangrove forest management models as they not only have the knowledge and capacity, outcomes significantly affect their lives and livelihoods. Findings suggest that the activism of local communities, specifically in the form of various women's gatherings, is reshaping policy milestones and opening up pathways towards gender and ecological justice.

KEYWORDS

Forest landscape governance; Essential ecosystem areas; Postcolonial Feminist Participatory Action Research (PFPAR); Inclusive conservation; Gender and ecological justice.

1. INTRODUCTION

Essential Ecosystem Areas (EEA) policies are an emerging form of policy that proposes a conservation area management approach outside of the Indonesian bureaucracy's classical conservation model. It provides broader coverage and makes conservation area management available to a wider range of more diverse stakeholders. The EEA policy is in part a response to growing interest among a broader range of institutions and organizations who wish to undertake conservation initiatives. On the one hand, this provides more explicit and more comprehensive coverage of territories outside of classical conservation zones, while also opening up opportunities for more diverse interpretations of conservation initiatives (Sahide et al., 2020). The EEA management model is thus a unique policy instrument that could be implemented for different rationales involving many stakeholders. Significantly, the territorial distinction also extends classification of state forests and private areas into areas deemed to have high conservation value (Direktorat BPEE, 2020, 2018). One of the key elements of this policy is the way it opens up opportunities for the new interpretations, conflict, and misconduct of bureaucracies, to manage conservation in normative ways. However, the implications of the EEA model is expected to have a broad impact beyond jurisdictional areas (Sukara et al., 2018). It is therefore also important to view the EEA scheme as a policy designed as potentially having an indirect challenge to conservative

interpretations of conservation. It poses a threat to the historically rigid structure of the bureaucratic conservatism of conservation that is place, and one of the key means for influencing these outcomes are through mandates of collaborative and participatory approaches (Moeliono et al., 2009; Setiahadhi et al., 2017).

The EEA policy was borne in part through ideas about landscape approaches as a more comprehensive and scaled approach to reversing ecological degradation, alongside its ability to establish a more equitable model to think about biodiversity conservation practices (Kurauchi et al., 2015; Resurreccion & Elmhirst, 2008). This is because it considers the complexity that often contradicts multiple stakeholders' and voices' interests and practices. Forest access, utilization, and landscape governance is indicative of histories of enclosure and injustice, enacted through the prohibition and criminalization of various practices, including non-timber forest products and deadwood collectors. The implications are especially stark for marginalized groups and women's communities (Africa-Verceles, 2021; Dobbin, 2021; Elmhirst et al., 2017; Foggini & Brombal, 2021). In recent years across the Global South, local forest communities and networks of civil society and activists in Indonesia have started to support collective action for environmental justice. Many communities in the global south commonly employ participatory action research approaches as instruments to amplify local voices and interests in forest landscape governance. Such instruments can serve as a powerful governance mechanism to support marginalized communities (Bull et al., 2018; Elias et al., 2017; Elmhirst et al., 2017).

Trends of cultivating local narratives about local women's perspectives and coalitions of broader movements seeking justice in Indonesia serves as a powerful indicator of shifting dimensions of the women's movement (Asriani, 2016; Bull et al., 2018; Colfer et al., 2016; Elmhirst et al., 2017), which is also documenting similar activism in Africa, Asia, and Latin America (Africa-verceles, 2021; Aktar, 2019; Chains & Issues, 2016; Fu et al., 2022; Essougong et al., 2019; Sánchez-almodóvar et al., 2023; Soubly et al., 2020; Taylor & Bonner, 2017). Aktar's research in Bangladesh, for example, shows that organizationally and individually, there have been significant achievements for human rights and women's human rights in particular, in support of gender equality and social justice. Africa-verceles (2021) reported that in the Philippines, initiatives to gain recognition of forest rights and the right to participate in decision-making began with movements for self-consciousness. This has been especially true in the context of discrimination against educational rights. In Cameroon, Essougong et al. (2019) found that participatory forest management can change the lives of communities in and around forests. Moreover, movements against mining are widespread in Latin America, specifically in using environmental damages as an entry point for making traction on rights (Taylor & Bonner, 2017).

Although there has been recent interest in gender and forests, studies remain lacking and relatively few in number, especially ones with an interdisciplinary approach (Colfer et al., 2016; Elias et al., 2017). There is especially limited engagement on implications around climate change and forest-based policies. Another critical issue that is often overlooked in these studies relate to locally-rooted dimensions of land and tree ownership. Furthermore, there needs to be greater attention to questions of gender across value chains as gender relations serve as key dimensions for livelihood and justice. From a policy perspective, women and marginalized communities are systematically excluded from decision-making processes, especially in resource governance (Asriani, 2016). Even in social forestry, marginalized communities remain vulnerable and have low-tenure access, even when they are the targets of the policy intervention (Schweizer et al., 2020). As interest has grown in forest governance in

coastal areas, similar phenomenon are emerging. Finally, in terms dimensions of ecological sustainability in forest landscape governance communities are often systematically blamed as the culprits of environmental change (Harahab et al., 2020). Meanwhile, communities dependent on natural resources are the most likely to suffer from the negative impacts of climate change as climate can serve as a threat multiplier. Gendered climate injustice , for example, can be catastrophic and in patriarchal societies in Southern Africa (Tanner et al., 2022). On the other hand, forest governance schemes in some communities can increase the capacity for marginalized communities, as has been documented in Central Kalimantan (Soubly et al., 2020). Indeed, research shows that community-based inclusive governance models can assist in proving clear conservation outcomes, while also improving community ownership rights, and supporting livelihoods (Tanner et al., 2022).

This research addresses issues of marginalization of vulnerable communities in forest landscape governance around Taman Kili-Kili. The Postcolonial Feminist Participatory Action Research (PFPAR) perspective method was adopted here to extend from this critical engagement and extend into the normative planning processes of EEA policy. PFPAR derives its analytical strength from a justice framework as it identifies opportunities for participation in the governance of natural resources. Evans, et al. (2017) note that women tend to have less say than men in forest communities and participation in decision-making, particularly regarding forests and natural resources. The problem to date with EEA Governance in Taman Kili-Kili is the inconsistency between regulatory schemes and on-the-ground practices. In addition, the problem of low community participation around mangrove forests presents a challenge to striving for inclusive forest governance. Moreover, most residents around the forest do not know the EEA scheme of Taman Kili-Kili and do not distinguish between EEA and other forms of bureaucratic administration. This paper thus aims to reveal and promote the principle of inclusivity in forest landscape governance, drawing on gender and ecological justice.

2. RESEARCH METHODS

This research adapts the feminist participatory action research to promote the goals of gender and ecological justice. The importance of feminist research methods in forestry is to change the plight of marginalized communities, particularly women, and the governance of forest landscapes. Exact science is a part or product of a context that is superstitious, according to a feminist lens. Indeed, feminists have a poor relationship with quantitative research methods because they fail to uncover the complexity of social relations and often obscure dimensions of inequality (Elias et al., 2017). This is not only the case in women's studies and forests but also in the complexity of women's experiences and challenges, which are often lost in the "hypnosis" with numbers (Ahlborg & Nightingale, 2018). Colfer, 2017 recommend conducting ethnographic research to uncover the meaning and practice of forest tree landscape-based gender. One reason is to respond to increasingly complex ecological damage, including the climate crisis.

In addition, Agarwal (2000) argues that while there is a rise in the nominal participation or physical presence of women, there is less attention on the interactive dimensions of this work to empower women's participation. She argues that much of the research focuses on women's numerical strength rather than their ability to participate better in decision-making processes or in taking the initiative to exercise influence. Yet women's voices and influences are far more important and powerful than mere physical presence. Even with dedicated efforts for inclusion, women also often lack the experience, confidence, skills, or platform to engage. Therefore a PFPAR, rarely

employed in Indonesia, provides a distinct commitment to these gendered power dimensions and relations.

EEA Taman Kili-Kili is located in Trenggalek District in East Java, Indonesia. Taman Kili-Kili was designated as an EEA through the Decree of the Governor of East Java Number 188/39/KPTS/013/2020 concerning the Designation of the Essential Ecosystem Area of Taman Kili-Kili Trenggalek District. It is defined as having an area of 54.40 ha at 8°25'33.33" LS, 111°25'37.6" E to 8°15'45.04" LS, 111°26'49.68" E. The EEA of Taman Kili-Kili received status as a High Conservation Value Area (HCVA) because Taman Kili-Kili beach is a breeding ground for sea turtles which, according to the IUCN Red List are animals with a "Vulnerable" (VU) status, or animals that are close to extinction and need protection. Three types of turtles are often found on Taman Kili-Kili Beach, namely the Green Turtle (*Chelonia mydas*), Hawksbill Turtle (*Eretmochelys imbricata*), and Leatherback Turtle (*Dermochelys olivacea*). Of the three types, the Leatherback Turtle was one of the giant largest turtles ever found, with a size of about 2 meters and weighing approximately 700 – 800 kilos.

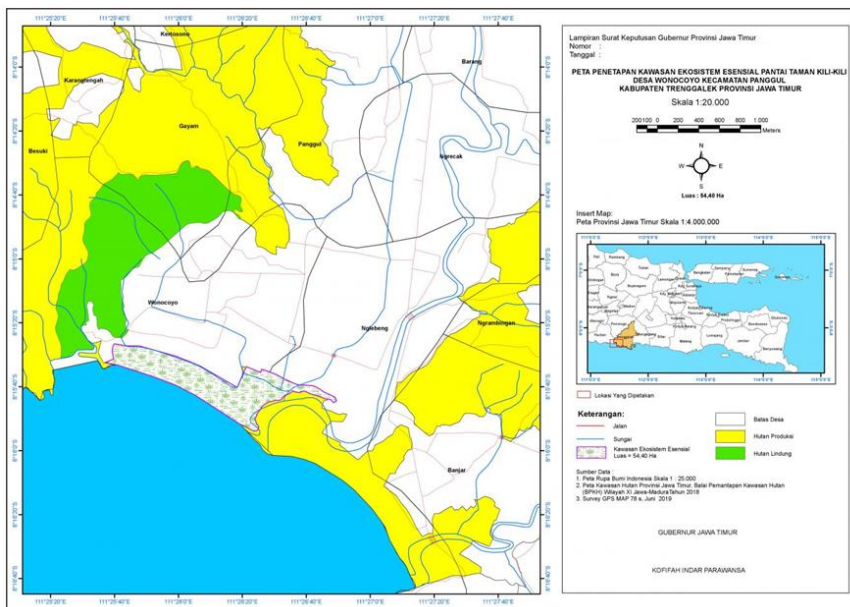


Figure 1. The map of research location of EEA Taman Kili-Kili.

The study instruments included fieldwork consisting of talks in the field, Focus Group Discussion (FGD), and observation. The selection of FGD participants was carried out together with the focal point from the village. The focal points are community activists and local NGO members. The community FGD was conducted twice, with different participants. In the second FGD, the previous participants also chose who to invite. The FGD participants are members of communities with very limited public access, their livelihoods obtain marginal income, and overall household is not fixed, and villagers who do not have social class. In terms of postcolonial theory, they could fall into the category of the subaltern, namely groups that are classless, hidden, silent, and mute (Spivak 2008).

The number of FGD participants consisted of 16 people; 8 people attended the first, and another 8 people attended the second and there was equal gender representation. We employed different methods adapted to each group. In the first community FGD,

resource mapping, historical maps, discussions, and drawing methods were used. In the second FGD, researchers focused more on the methods of teasing out power relations between actors in the village from the perspective of the subaltern group. This method is important because research requires an overview of local ecological political configurations in an intersectional manner, both from the dimensions of gender, social class, and forest landscape control.

We also conducted an FGD among village and district stakeholders. In this FGD, marginalized communities, especially women, were also invited. The main objective of this FGD was to highlight community interests and stakeholder perceptions. The research team acted as a bridge for lines of communication to begin to open up. Village and district authorities listened to the problems and thoughts of community residents. At the same time, the community had the opportunity to listen to the point of view of local authorities. The two interest groups, despite their heterogeneous nature, began to learn to listen to each other. They expressed various perspectives about mangrove forest governance arrangements in the future, and the desire to communicate and cooperate with each other.

The communication time used for observation and organizing several FGDs in 2022 is about two weeks. Beyond the intensity of time for observation and FGD, the research team maintained communication with focal points since the preliminary study in 2021. In addition to the FGD experience, one of the most convenient ways for women's groups to share was to draw and create paper renditions with colorful origami. It was easier for them to visualize their positionality on the mangrove forest EEA. The drawing activity illustrated the changing situations from environmental changes. The community FGD narratives showed that the interests between men and women towards trees and the landscape of mangrove forests are distinct. Women's groups take into account the sustainability of mangrove trunks from the dangers of canoes more carefully and ensure that young mangrove trees are not affected, as well as avoiding canoe tracks on shrimp, crabs, and shellfish.

Local inhabitants living in mangrove forest area are fishers. Fishers, including female fishers, from the village and beyond can be seen actively collecting shellfish, shrimp, and crabs, using small engine canoes. There are restrictions from the EEA that prohibit small canoes from entering mangrove forests, reducing fishers' catches. According to the confessions of fishers, the catch is sold in the local market, bought by neighbors, or for household consumption. Their activities are not for large catches and they don't harvest to sell to global market orders. The research team collected most of the narratives from the participating women in this article.

"Field talks" are an alternative to collecting subject narratives. Field talk is seen as a more natural, closer, and deeper approach to understanding the thoughts and perspectives of the subjects than interviews. The subject becomes the source of the phenomenon being discussed. Researchers learn how mangrove forest communities respond to an ecological crises and how local residents respond. Desires and resilience emerge through descriptions of changing life situations, which we interpreted and contextualized as part of our findings. With field talks, the issue of ecological crisis becomes a broad, situated, and more comprehensive conversation.

Observations were made by members of the research team when they visited the research site. Observations covered most settings of people's lives, especially the morning and evening life of local residents. For example, the odd jobs that are available to people and how they manage limited resources and prevent conflict provides unique insight.

The location of Taman Kili-Kili is a turtle breeding site. In the park area, there is also a shrimp farming business and a coconut garden business. The research team conducted observations and field talks about the development of these large-capital businesses, volunteerism in the turtle breeding park, and the relationship between natural resource utilization and the most marginalized groups in the region.

All of the FGD rapporteurs, notes from field talks, notes from observation, and post-field gatherings conversations, were transcribed, discretely compiled, and protected, remaining as property of the research team. Each FGD, and field talk is preceded by permission to local subjects and participants, both for recording and image capture. Not all permission from subjects is written, as done based on oral agreement, recorded, and transcribed. For publication purposes, the ethics of using the data are regulated through internal agreements and conform with strict ethical standards regularly discussed among the research team. The involvement of subaltern groups needs special treatment, namely providing incentives for substitute transportation and money from the day they leave work for research discussions. This creates various constraints and the number of engagements were smaller than the average opinion of those working odd jobs on a daily basis.

3. RESULTS

The narratives from the conversations with participants show that they feel lucky to live in mangrove forest areas, even though the resources around them are limited to sustain their daily lives. Mangrove forests are breeding grounds for fish, shrimp, and crabs. For people who are engaged in fishing or other types of food, mangrove forests promise hope and sustainability.

These participants admitted that they did not have much access to public services, did not have health insurance, and some did not receive subsidies provided by the state because their work was unknown. They said that they were outside the village-level decision-making cycle and did not describe any forms of village regulations. Among postcolonial scholars, these people are described as subaltern; communities that are silent, hidden, mute, and disowned (Hendrastiti & Setiahadi, 2022; Spivak, 2008).

Subaltern participants shared that they took care of the environment while understanding conservation. They learned to be careful when burning garbage and cutting trees. There are activities that coincidentally contribute to saving the environment, namely scavenging rivers and collecting beach garbage. The more the river water descends towards the sea, or floods, the greater the fortune of the scavengers. In such river and beach scavenging, the flooding can be seen as a blessing. We had long discussions about how the flood is considered a blessing in this way, given that the research team had never heard of the consequences of flooding as a gift.

Subaltern groups attending the FGDs mentioned that conservation is caring for the sustainability of the environment in which they live. There's not much they "define" about conservation. For them, conservation is not only a concept that is discussed, but conservation is a concrete act. Aside from the subaltern groups, there are also local volunteers who work for Taman Kili-Kili and periodically interact with subalterns. For local volunteers, conservation is the act of caring for and cleaning mangrove areas. The volunteers are tasked with educating the community to maintain mangrove ecosystems. There are supporters of these volunteers, namely some philanthropists who donate funds to support incentives to them. Those volunteers were given incentives every three months. Mostly, their jobs are caring for mangroves during post-planting periods, doing treatment of mangrove growth in the tidal season that causes abrasion, and taking care of the younger less resilient mangroves. In the extreme periods of the

tidal season, it takes energy to “climb” lest the young mangroves *doyoh* (a local term for plant learning).

Discussions with participants began with a discussion about self-identity. The method used is drawing. The images painted by the participants were varied and reflected the objects around their homes. For example, they visualized their identities with books, the moon, apples, the sun and stars, bananas, crabs, coconut trees, water, and butterflies. When they were asked about the meaning of their paintings, they explained that books reflect the source and window of science. The moon is interpreted as a force to illuminate nature from the darkness. Apples are a symbol of the sweetness and sourness of life they experience. The sun symbolizes the warmth of sunlight and a star that illuminates the darkness. Women want to be agents who illuminate and benefit the village. Bananas are described as easy to grow and produce, cheap in price, have many benefits, and provide income for village people.

In addition to discovering the identity of subaltern communities in the Taman Kili-Kili Turtle Park, at the time of the FGD, some interesting findings and distinctions that we discovered. For example, when participants were asked to draw their identity as residents of Taman Kili-Kili, the female participants drew books, the moon, apples, the sun and stars, bananas, crabs, coconut trees, water, and butterflies. From the pictures, we had a further discussion. What is the meaning of the book, participants who draw the story tell the meaning of the book. For her, the book is the source and window of science, or a woman is an agent of knowledge.

Another example of a drawing is a moon. The participant who drew a moon told us that a moon is interpreted as a force to illuminate nature from the darkness. Apples are a symbol of the sweetness and sourness of life they experience. The sun symbolizes the warmth of sunlight and a star that illuminates the darkness. Women want to be agents who illuminate and benefit the village. Bananas are described as easy to grow and produce, cheap, have many benefits, and provide income for village people.

Crabs symbolize sea animals that are easy to find around Taman Kili-Kili. Women can be visualized as crabs because they have a hard personality on the outside, but in fact, the coastal women are gentle and always take care of nature. The coconut palm tree is depicted as an object whose all parts of the tree are useful. The coconut palm tree is mentioned as beneficial making surroundings shady, calm, and beautiful; such was the woman in her life. Some participants described their identity as a glass of water, the source of life. In the Taman Kili-Kili area, there are many kinds of butterflies, and participants use them to draw their identity as butterflies, symbols of sustainability and beauty.

At the FGD conversations, women's groups expressed their opinions openly, and no one was shy about sharing their stories. The average participant was bold, progressive, and knowledgeable. In identity brainstorming, women also created a resource mapping. In natural resources mapping, female participants could reflect on their relationships with non-human nature, for example, their relationships with trees, rivers, beaches, seas, mangroves, fishes, and crabs. Talking about rivers, FGD women's groups tell a lot about the function of rivers that pass through the village and the beneficial and detrimental relationships of the existence of rivers that traverse and divide the village. They also explain a lot about the mouth of the river (*Kamba*), which provides fortunes through the arrival of many fish in certain seasons. River fish, which is popular among women for consumption, is the *tupang cupang*, a fish with a black color. Usually, they catch fish for their own needs, and if there are many catches, the fish are sold in the local market. River prawns, *sekul shrimps*, and *wawar*, usually made into *rempeyek* (crackers), in *brengkes* (a wrapped savory cake with banana leaves and steam). Women

also vividly describe the space of women's economic activity. The women's groups not only describe their cash income from mangrove forests, they are also active in productive spaces that they can access, like planting mangrove seeds. Women who seek income around mangrove areas also supervise activities of fishers and tourists so as not to damage young mangroves. Unfortunately, the supervisory function of the women were rarely appreciated. The spaces where women engage, including the mangrove forests, are spaces that are under-noticed.

Women choose different spaces or perform different forms of public participation. When catching crabs, it turns out that women choose those that are useful for consumption only so that other crabs continue to live in mangrove forests. Women recognize crabs with various types, especially regarding their social functioning. For example: *yuyu empet*, are the most popular types of crabs. They come out of the nest on the post-hot day. *Yuyu empet* is made into local foodstuffs such as *kendo*, *botok*, and *sayur lodeh*. *Yuyu srintil*, is a type of crab widely consumed by local people. They live on the beach. *Yuyu dura*, are a type of crabs that is not consumed and is not consumed as a food ingredient.

There are indications about the landscape of sea and river products for culinary and family menus. Mangrove landscape studies are interesting and distinct in forest landscape governance, especially regarding the interactions of the sea and river-based food- and tree-scapes. Both landscapes, the food landscape and the tree, can be categorized as a governance medium uniquely controlled by women because the realm of kitchen cooking for the family is the space dominated or controlled by women. Women master the detailed information on how to obtain, process, and market specific elements. That knowledge was discussed, and during thematic discussions, topics about Taman Kili-Kili specialties and culinary from seafood and rivers were always encountered. That is why food landscapes is as important to the tree landscape in mangrove landscape governance.

In the FGD with the men's group, the discussion of social and geographical mapping took place in a situation of very lively discussions, remembering each other's time sequences and actors, as well as describing conditions of geographical changes from time to time. They decided to draw a history of the changing geography of Taman Kili-Kili before 1987, followed by a period of 1987-2004, and ending in 2004 - present. The name of Taman Kili-Kili and its history, among others, revealed that in 2010, many young people returned from migration to Malaysia and often gathered in the Kili-Kili area. They named Kili-Kili as a sarcastic gesture, which they mentioned was the word connected to an area of "perversion," a territory where sex transactions or "*ndol*" was taking place. Although the road was bad and difficult to access, many couples come to the region on Fridays.

On the geographical map of Taman Kili-Kili, descriptions were accompanied by a narrative of physical changes in the area, which helped us to learn about the types of plants used. It explains the thriving species such as perennials, fruits, and coconuts, but also shifted since 1987 as the perennials began to disappear. Part of the land remains a prairie where large livestock, such as buffalo, were grazed by residents. But now the grazing land has turned into an unproductive bush field. There is also information about the extent of pumice land on the coast. Businessmen from Jakarta were interested in mining the pumice, and in the past decade, residents explain the area has completely been lost.

In approximately 2014, Taman Kili-Kili was used as a fishing location. The Fisheries and Marine Agency at that time supported the Village's efforts to turn the function of Kili-Kili into a positive location. In addition to the "perverted" activities, there are also

business activities taking place there. There was once a pumice business owned by people from Jakarta. At a time when pumice was still widely available, it was also known for many spurs and pandanus plants. Typical coastal plants like these are useful in tempering abrasion of sea waves. For the pumice business, residents are used as "agents" for takers and collectors at a price of 75 rupiahs per kilogram (equal to USD 5). Their business ceased in the 1990s.

In the past, the grazing fields (*oro-oro*) consisted of buffaloes and goats. According to locals the land belongs to *Perhutani*. *Perhutani* is a State-Owned Enterprise in the form of a Public Company (*Perum*) which has the task and authority to manage state forest resources.¹ However, according to the village map, the land is not *perhutani* and belongs to the village administered under a different set of laws. That's why government land is also called GG (ground governance), which can be used for grazing. This is what residents who participated in the FGD said became a point of conflict with the community and village officials. Once searched, in an older Dutch version of the map the land was called GG, but *Perhutani* did not retreat with the identification of this data. As a result of *Perhutani's* power, residents (via the Forest Village Community Institution, or the Indonesian acronym LMDH) must pay taxation to *Perhutani*. During the FGD, the status of Kili-Kili land was unclear and was still under different perceptions between residents and *Perhutani*.

The development of Taman Kili-Kili was funded by a corporate social responsibility (CSR) initiative of UPBJ PLN Java-Bali (The State Electricity Company) named Pelang Beach. Since then, residents have accepted Taman Kili-Kili as a valuable location and heritage site. It consists of a major turtle breeding site, so this park is also referred to as the Turtle Conservation Park, providing the site pretense for establishing an EEA. The field data shows that women and men access forests differently because of their interests and roles, individually and socially, which is also described by Zhang et al. (2022). That difference is seen in the record of the visualization of the existence of men and women in Taman Kili-Kili. Our participatory action research and the composition of inclusive forest governance can be summarized in the infographic below.

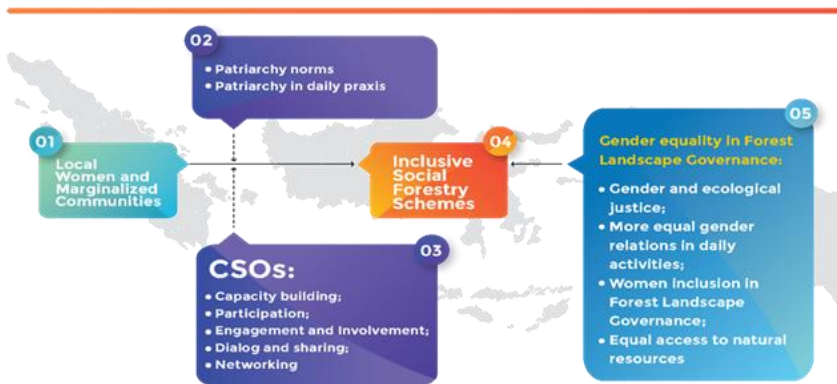


Figure 2. Sketch of forest landscape governance research findings.

¹ *Perhutani* is a state-owned enterprise in the form of a Public Company (*Perum*) that has the duty and authority to manage state forest resources on the islands of Java and Madura. Its strategic role is to support the environmental sustainability systems, socio-cultural systems, and economic systems of forestry communities

4. DISCUSSION

FGDs, field talks, and participatory observations helped us as researchers identify women's relations to environmental issues, climate change and crisis, disasters. Results provided unique insights into where women stand, and specifically provided intersectional context on the subaltern. This also illuminates women's governance considerations in forest landscape governance. It points to the various approaches and means for cultivating an inclusive approach. Explanations about changes in nature consist of a convergence of understandings about species, communities, and ecosystems (Kuuluvainen et al., 2021). Designing an inclusive participation scheme for forest landscape governance is gaining greater interest and more deliberate attention in research (see also Bull et al., 2018; Foggin & Brombal, 2021; Hayhurst & Cruz, 2019; Kramer et al., 2021; Kuiper et al., 2022; Langston et al., 2020).

The findings from this field research, namely the attention to gender and the subaltern relative to forest landscape governance discourses highlight the ways that local communities and women can serve as meaningful partners in formulating suitable schemes that also empower local interests. As with the forest landscape governance, the conditions of mangrove forests constantly change as part of complex interactions between livelihoods and the environment, and increasingly impacted by climate change. Studies from different countries point to these interactions in different ways (Kramer et al., 2021; Leisher et al., 2016; Nzyoka et al., 2021; Sayer et al., 2020).

Beyond an inclusive and participatory forest landscape governance approach, there are also broader questions about control and regulation of forest land, which is the basis of any forestry intervention. If solely driven by outsiders, such as state definitions and perceptions about forested landscapes without the presence and participation of intersectional local citizens, policy can have detrimental and harmful effects for local people. Marilyn Hoskins research in West Africa between the 1960s and 1990s are a case in point. In her findings, she shows how forestry projects were only sometimes profitable for local communities, having significant impacts on men's and women's lives. Forestry projects reflect values beyond local culture and local physical realities, dimensions that are often difficult to reconcile. Hoskins shows how local women complained about forestry projects that put a large workload on them, shifting control of traditional products from women to men, and resulted in a reallocation of income from women to men. Alternative approaches are possible, whereby women are willing to be involved in every stage of the project, starting from the planning formulations, and by doing so, communities and environments might benefit significantly from the results of their work (Colfer et al., 2016).

New forms and modifications of governance modalities are needed to achieve better forest landscape governance policies that begin with an ecological perspective (Schweizer et al., 2020). Indeed, global environmental governance needs to develop more just and locally rooted perspectives in understanding and formulating initiatives for ecological sustainability (Essougong et al., 2019). Our approach of rooting local stories and narratives among vulnerable groups and women in Taman Kili-Kili presents a potential justice-based model of forest landscape governance .

Findings from the field show that limited access to environmental policies, especially on mangrove forest governance in Taman Kili-Kili exacts harm on vulnerable communities of women. Therefore, participatory research projects can devise new pragmatic and locally situated models of inclusive and participatory governance rooted in local communities (Essougong et al., 2019). Considering the culture, values, and habits of local inhabitants is indeed strengthens awareness of preserving the ecology and encouraging conservation behaviors, all of which are already explicit in many

agendas of inclusivity of forest landscape governance (Margules et al., 2020). Previous research in Seram, for example, has proven that the involvement of many local stakeholders is a driver of the emergence of inclusive and sustainable governance schemes (Langston et al., 2020), and engaging with hunters in Northern Sulawesi shows how hunters can become protectors (Batiran and Fisher, 2020).

In some cases, local communities have taken collective action to "seize" lost access spaces, which can be used as a force to enter decision-making spaces and forms of justice. Studies on forest landscape change governance and justice have been conducted elsewhere (Nzyoka et al., 2021), and have also explicitly considered women's voices and presence (Colfer et al., 2016; Sayer et al., 2020). The inclusion of marginalized groups and women in mangrove forest governance policies, particularly in the Taman Kili-Kili area, is a fundamental change in forest landscape ideations. Indeed, forest landscape governance needs to involve all elements of the community, including women and the subaltern.

5. CONCLUSIONS

Participatory and inclusive mangrove management in forest landscape governance helps accelerate the "strengthening" of marginalized communities and women's positions in gaining forest rights and gender and ecological justice. The voices of marginalized communities and women can be made more visible in the context of forest landscape governance, and can have profound impacts in rethinking conservation approaches. The design of EEA policies in Taman Kili-Kili shows not only different ways to involve women and marginalized groups, but also helps to manifest research engage into possible applications on a practical level. Our methods drawing on PFPAR, reveals the positionality and composition of existing groups in the village on forest governance. Power relations and local communities' attachment to forests should center and shape considerations of inclusivity. This research thus contributes to possible ways that inclusive forest landscape governance schemes can take place at local levels in the changing Indonesian forest policy landscape. The findings show that local community activism is carried out to achieve gender and ecological justice. In the future, action research must continue to improve the design of participatory and inclusive mangrove management in forest landscape governance.

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REFERENCES

Abdillah, S., Harahab, N., Primyastanto, M., & Semedi, B. (2020). Analysis of suitability and carrying capacity of mangrove ecosystem for ecotourism in Lembar Village,

- West Lombok District, Indonesia. *Biodiversitas Journal of Biological Diversity*, 21(2), 596–604. <https://doi.org/10.13057/biodiv/d210222>
- Africa-Verceles, N. (2021). From the personal to the political: Young, Filipino, and feminist. *Asian Journal of Women's Studies*, 27(1), 109–129. <https://doi.org/10.1080/12259276.2021.1882089>
- Agarwal, Bina. (2000). Conceptualising environmental collective action: why gender matters. *Cambridge Journal of Economics*, 24, 283 – 310. <http://cje.oxfordjournals.org>.
- Ahlborg, H., & Nightingale, A. J. (2018). Theorizing power in political ecology: The *where* of power in resource governance projects. *Journal of Political Ecology*, 25, 381-401. <http://dx.doi.org/10.2458/v25i1.22804>
- Aktar, S. (2019). Transnational feminism and women's activism: Strategies for engagement and empowerment in Bangladesh. *Asian Journal of Women's Studies*, 25(2), 285-294. <https://doi.org/10.1080/12259276.2019.1612508>
- Asriani, D. D. (2016). Training instruments for environmental justice for women in Indonesia: A community development project of ASEAN Study Centre. *Asian Journal of Women's Studies*, 22(1), 75-85. <https://doi.org/10.1080/12259276.2015.1133165>
- Batiran, K., & Fisher, M. R. (2020). From hunter to protector: The invention and reinvention of the Nuri Talaud. *Forest and Society*, 4(1), 35-47.
- Bull, G. Q., Boedihartono, A. K., Bueno, G., Cashore, B., Elliott, C., Langston, J. D., ... & Sayer, J. (2018). Global forest discourses must connect with local forest realities. *International Forestry Review*, 20(2), 160-166. <https://doi.org/10.1505/146554818823767573>
- Chains, V., & Issues, E. (2016). *The Earthscan Reader on Gender and Forests*. Earthscan.
- Colfer, C.J.P. (2017). On communication among “enequal”. In C.J.P. Colfer, M. Elias, S.S. Hummel, and B.S. Basnet (Eds.), *The Earthscan Reader on Gender and Forest*. pp. 61 -79. Routledge. <https://doi.org/10.14237/ebl.8.1.2017.834>
- Direktorat BPEE. (2018). *Perlindungan Kawasan Ekosistem Esensial*. BPEE
- Direktorat BPEE. (2020). *Renstra 2020-2024 Direktorat BPEE*. BPEE. Retrieved from <https://ksdae.menlhk.go.id/assets/publikasi/publikasi/Renstra%202020-2024%20Direktorat%20BPEE.pdf>
- Dobbin, K. B. (2021). Environmental justice organizing as commoning practice in groundwater reform: Linking movement and management in the quest for more just and sustainable rural futures. *Elementa: Science of the Anthropocene*, 9(1), 00173. <https://doi.org/10.1525/elementa.2020.00173>
- Elias, M., Hummel, S. S., Basnett, B. S., & Colfer, C. J. P. (2017). Gender bias affects forests worldwide. *Ethnobiology letters*, 8(1), 31-34. <https://doi.org/10.14237/ebl.8.1.2017.834>
- Elmhirst, R., Siscawati, M., Basnett, B. S., & Ekowati, D. (2019). Gender and generation in engagements with oil palm in East Kalimantan, Indonesia: Insights from feminist political ecology. *The Journal of Peasant Studies*, 44(6), 1135-1157. <https://doi.org/10.1080/03066150.2017.1337002>
- Essougong, U. P. K., Foundjem-Tita, D., & Minang, P. A. (2019). Addressing equity in community forestry: lessons from 20 years of implementation in Cameroon. *Ecology and Society*, 24(1), 9. <https://doi.org/10.5751/ES-10656-240109>
- Evans, Kristen, Flores, S., Larson, A.M., Marchena, R., Muller, P., and Pitkile, A. (2017). Challenges for woman's participation in communal forests: Experience from Nicaragua's indigenous territories. *Women's Study International Forum*, 65, 37-46. <https://doi.org/10.1016/j.wsif.2016.08.004>

- Foggin, J. M., Brombal, D., & Razmkhah, A. (2021). Thinking like a mountain: Exploring the potential of relational approaches for transformative nature conservation. *Sustainability*, *13*(22), 12884. <https://doi.org/10.3390/su132212884>
- Fu, C., Song, X., Xie, Y., Wang, C., Luo, J., Fang, Y., ... & Qiu, Z. (2022). Research on the spatiotemporal evolution of mangrove forests in the Hainan Island from 1991 to 2021 based on SVM and Res-UNet Algorithms. *Remote Sensing*, *14*(21), 5554. <https://doi.org/10.3390/rs14215554>
- Hayhurst, L. M., & del Socorro Cruz Centeno, L. (2019). “We are prisoners in our own homes”: Connecting the environment, gender-based violence and sexual and reproductive health rights to sport for development and peace in Nicaragua. *Sustainability*, *11*(16), 4485. <https://doi.org/10.3390/su11164485>
- Hendrastiti, T.K., & Setiahadi, R. (2022). The agency of women in the climate crisis: A Decolonizing feminist methode. *Jurnal Perempuan*, *27*(3), 203 – 213. <https://doi.org/10.34309/jp.v27i3>
- Kramer, A. K., Klümper, F., Müller, A., & Thornberry, F. (2021). Strengthening Accountability for Responsible Land Governance: Linking Governance of Tenure to Human Rights. *Sustainability*, *13*(19), 11113. <https://doi.org/10.3390/su131911113>
- Kuiper, J. J., Van Wijk, D., Mooij, W. M., Remme, R. P., Peterson, G. D., Karlsson-Vinkhuyzen, S., ... & Pereira, L. M. (2022). Exploring desirable nature futures for National Park Hollandse Duinen. *Ecosystems and People*, *18*(1), 329-347. <https://doi.org/10.1080/26395916.2022.2065360>
- Kurauchi, Y., La Vina, A., Badenoch, N., & Fransen, L. (2015). *Decentralization of Natural Resource Management: Lesson from Southeast Asia*. USAID. Retrieved from https://pdf.usaid.gov/pdf_docs/pbaaa192.pdf
- Kuuluvainen, T., Angelstam, P., Frelich, L., Jöngiste, K., Koivula, M., Kubota, Y., ... & Macdonald, E. (2021). Natural disturbance-based forest management: Moving beyond retention and continuous-cover forestry. *Frontiers in Forests and Global Change*, *4*, 629020. <https://doi.org/10.3389/ffgc.2021.629020>
- Langston, J. D., Riggs, R. A., Boedhihartono, A. K., Kastanya, A., & Sayer, J. (2020). An island in transition: governing conservation and development in Seram, Indonesia. *Singapore Journal of Tropical Geography*, *41*(3), 413-431. 1-19. <https://doi.org/10.1111/sjtg.12336>
- Leisher, C., Temsah, G., Booker, F., Day, M., Samberg, L., Prosnitz, D., ... & Wilkie, D. (2016). Does the gender composition of forest and fishery management groups affect resource governance and conservation outcomes? A systematic map. *Environmental Evidence*, *5*, 1-10. <https://doi.org/10.1186/s13750-016-0057-8>
- Margules, C., Boedhihartono, A. K., Langston, J. D., Riggs, R. A., Sari, D. A., Sarkar, S., ... & Winarni, N. L. (2020). Transdisciplinary science for improved conservation outcomes. *Environmental Conservation*, *47*(4), 224-233. <https://doi.org/10.1017/S0376892920000338>
- Moeliono, M., Wollenberg, E., & Limberg, G. (2009). *Desentralisasi Tata Kelola Hutan: Politik, Ekonomi dan Perjuangan untuk Menguasai Hutan di Kalimantan, Indonesia*. Center for International Forestry Research (CIFOR).
- Nzyoka, J., Minang, P. A., Wainaina, P., Duguma, L., Manda, L., & Temu, E. (2021). Landscape governance and sustainable land restoration: Evidence from Shinyanga, Tanzania. *Sustainability*, *13*(14), 7730. <https://doi.org/10.3390/su13147730>
- Resurreccion, B. P., & Elmhirst, R. (Eds.) (2012). *Gender and natural resource management: Livelihoods, mobility and interventions*. Routledge.

- Sahide, M. A. K., Fisher, M., Nasri, N., Dharmiasih, W., Verheijen, B., & Maryudi, A. (2020). Anticipating a new conservation bureaucracy? Land and power in Indonesia's Essential Ecosystem Area policy. *Land Use Policy, 97*, 104789. <https://doi.org/10.1016/j.landusepol.2020.104789>
- Sánchez-Almodóvar, E., Gómez-Trigueros, I. M., & Olcina-Cantos, J. (2022). Climate Change and Extreme Weather Events in the Education of the Citizens of the Twenty-First Century: The Perception of Secondary Education Students. *Social Sciences, 12*(1), 27. <https://doi.org/10.3390/socsci12010027>
- Sayer, J., Boedhihartono, A. K., Langston, J. D., Margules, C., Riggs, R. A., & Sari, D. A. (2021). Governance challenges to landscape restoration in Indonesia. *Land Use Policy, 104*, 104857. <https://doi.org/10.1016/j.landusepol.2020.104857>
- Schweizer, D., Meli, P., Brancalion, P. H., & Guariguata, M. R. (2021). Implementing forest landscape restoration in Latin America: Stakeholder perceptions on legal frameworks. *Land Use Policy, 104*, 104244. <https://doi.org/10.1016/j.landusepol.2019.104244>
- Setiahadi, R., Pratiwi, D., & Ratnaningtyas, D. (2017). Deliberation process analysis of community based forest management policies implementation in Indonesia. *International Journal on Advanced Science, Engineering and Information Technology, 7*(3), 1076-1082. <http://dx.doi.org/10.18517/ijaseit.7.3.2127>
- Soubly, K., & Khatun, K. (2021). The role of middle actors on land use policy: a case study in Central Kalimantan, Indonesia. *Journal of Environmental Policy & Planning, 23*(3), 257-274. <https://doi.org/10.1080/1523908X.2020.1823207>
- Spivak, Gayatri Chakravorty. (2008). Can the subaltern speak? In B. Ashcroft, H. Tiffin, and G. Griffiths (Eds.). *The Postcolonial Studies Reader* (Second edition, pp. 28 – 37). Routledge.
- Sukara, E., Alikodra, H. S., Kartodihardjo, H., Putro, H. R., Roemantyo, & Pindi, S. (2018). *Management of Essential Ecosystem Areas*. White Paper 1. USAID. Retrieved from <https://winrock.org/wp-content/uploads/2018/08/WP1-FINAL-Winrock-Kemendagri-12-12-2017.pdf>
- Tanner, T., Mazingi, L., & Muyambwa, D. F. (2022). Youth, Gender and Climate Resilience: Voices of Adolescent and Young Women in Southern Africa. *Sustainability, 14*(14), 8797. <https://doi.org/10.3390/su14148797>
- Taylor, A., & Bonner, M. D. (2017). Policing economic growth: Mining, protest, and state discourse in Peru and Argentina. *Latin American Research Review, 52*(1), 3-17. <https://doi.org/10.25222/larr.63>
- Zhang, W., Meinzen-Dick, R. S., Valappanandi, S., Balakrishna, R., Reddy, H., Janssen, M. A., ... & Ghate, R. (2022). How Do Game Design, Gender, and Players' Backgrounds Affect Behavior in Framed Field Experiments? Evidence from Community Forestry in India. *International Journal of the Commons, 16*(1), 341–359. <https://doi.org/10.5334/ijc.1179>