

## PROTEKSI ISI LAPORAN KEMAJUAN PENELITIAN

Dilarang menyalin, menyimpan, memperbanyak sebagian atau seluruh isi laporan ini dalam bentuk apapun kecuali oleh peneliti dan pengelola administrasi penelitian.

## LAPORAN KEMAJUAN PENELITIAN

### Informasi Data Usulan Penelitian

#### 1. IDENTITAS PENELITIAN

##### A. JUDUL PENELITIAN

Shifting conflict into collaboration: Peatland fires mitigation in the biosphere conservation transition zone in Sumatra, Indonesia

##### B. SKEMA, BIDANG, TEMA, DAN TOPIK PENELITIAN

Skema Penelitian	Bidang Fokus Penelitian	Tema Penelitian	Topik Penelitian
Penelitian Terapan	Kebencanaan	Mitigasi, perubahan iklim dan tata ekosistem	Mitigasi dampak perubahan iklim.

##### C. KOLABORASI DAN RUMPUN ILMU PENELITIAN

Jenis Kolaborasi Penelitian	Rumpun Ilmu 1	Rumpun Ilmu 2	Rumpun Ilmu 3
Kolaboratif Luar Negeri	ILMU SOSIAL HUMANIORA	ILMU POLITIK	Ilmu Pemerintahan

##### D. WAKTU PELAKSANAAN

Tahun Usulan	Tahun Pelaksanaan	Lama Penelitian
2022	2023	1

##### E. ANCOR RESEARCH

Anchor Research	Topik Anchor
Eko Priyo Purnomo, Prof., S.IP., M.Si.,M.Res., Ph.D.	ICT Governance interoperability, Development and Policy Sustainability

#### 2. IDENTITAS PENELITIAN

Nama	Peran	Tugas
Rijal Ramdani, S.IP., MPA	Ketua Pengusul	

Nama	Peran	Tugas
Susilo Nur Aji Cokro Darsono, S.E., M.R.D.M., Ph.D.	Anggota Pengusul	Data management
Ahmad Baiduri	Mahasiswa Bimbingan	Pengumpulan data

### 3. MITRA KERJASAMA PENELITIAN (JIKA ADA)

Pelaksanaan penelitian dapat melibatkan mitra kerjasama, yaitu mitra kerjasama dalam melaksanakan penelitian, mitra sebagai calon pengguna hasil penelitian, atau mitra investor

Mitra	Nama Mitra	Kepakaran
Mejalis Lingkungan Hidup PP Muhammadiyah	Dr Gatot Supangkat	Ilmu Lingkungan

### 4. KOLABORASI PENELITIAN (JIKA ADA)

Mitra	NIDN/NIK	Instansi
Miriam Castillo Orozco	MC56878	University of Toronto

### 5. LUARAN DAN TARGET CAPAIAN

#### Luaran Wajib

Tahun	Jenis Luaran
1	Publikasi Jurnal Internasional terindeks SCOPUS,
1	Naskah Kebijakan

#### Luaran Tambahan

Tahun	Jenis Luaran
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### 6. KLUSTER

Kluster	Sub Kluster	Group Riset	Mata kuliah
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### 7. ANGGARAN

Rencana anggaran biaya penelitian mengacu pada PMK yang berlaku dengan besaran minimum dan maksimum sebagaimana diatur pada buku Panduan Penelitian dan Pengabdian kepada Masyarakat.

Total Keseluruhan RAB Rp. 27,000,000

Tahun 1 Total Rp. 27,000,000

Jenis Pembelian	Komponen	Item	Satuan	Vol.	Harga Satuan	Total
BAHAN	Bahan (Habis Pakai)	Perekam	Unit	5	Rp. 500,000	Rp. 2,500,000

Jenis Pembelanjaan	Komponen	Item	Satuan	Vol.	Harga Satuan	Total
BAHAN	Bahan (Habis Pakai)	GPS untuk koordinate GIS	Unit	1	Rp. 4,250,000	Rp. 4,250,000
PENGUMPULAN DATA	Tiket Transportasi	Tiket Pesawat 2 Asisten Peneliti Yogyakarta - PKU (PP)	OK(Kali)	4	Rp. 2,500,000	Rp. 10,000,000
PENGUMPULAN DATA	Hotel/penginapan	Sewa penginapan di Lokasi Penginapan (Hari)	OH	12	Rp. 300,000	Rp. 3,600,000
PENGUMPULAN DATA	Transportasi/BBM	Bensin untuk 15 Hari	OK(Kali)	15	Rp. 200,000	Rp. 3,000,000
ANALISIS DATA	Biaya Konsumsi Rapat	Konsumsi Olah Data 28 Hari untuk 3 orang	OH	84	Rp. 20,000	Rp. 1,680,000
PELAPORAN, LUARAN WAJIB, DAN LUARAN TAMBAHAN	Article Processing Charge (APC)	Membantu membayar APC	Artikel	1	Rp. 1,970,000	Rp. 1,970,000

## 8. LEMBAR PENGESAHAN

### HALAMAN PENGESAHAN LAPORAN KEMAJUAN PENELITIAN SKEMA:

Judul : Shifting conflict into collaboration: Peatland fires mitigation in the biosphere conservation transition zone in Sumatra, Indonesia

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Biaya : Rp. 27,000,000

Yogyakarta, 17 Mei 2023  
Mengetahui,  
Kepala LRI,



  
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## 9. RINGKASAN

Various conflicts over access to waters, lands, and forests that can lead to environmental degradation are still a challenge, particularly in terms of how these natural resources should be best governed. In our case study in Indonesia, conflicts occurred between a timber company and the local community over peatland water sharing, causing a long-term peatland fire in the transition zone of biosphere conservation. However, with the help of a convener, the conflict has turned into collaborative action in the form of peat-water sharing, canal normalization, developing canal blocks, and water monitoring. This study seeks to critically analyze what turning points had shifted this conflict to collaboration and what roles did the convener play in these collaborative-conflict transition processes. The findings show that: 1) the conflicting parties realized that there is uncertainty about the problem they face; 2) each party is mutually dependent, for example, concerning legitimacy and knowledge sharing; and 3) they are interested in obtaining consequential incentives, such as funding for the local community and mandatory regulation for the timber company. The present study is based on fieldworks conducted in 2016, 2018, and 2020 in a village located around the biosphere conservation transition zone of Sumatra, Indonesia. The data were collected through face-to-face interviews, participatory observations, and document analysis. In collaborative processes, the convener's role through its legitimacy, facilitation, mandate, and persuasion is critical. Without the convener's presence, the conflict may have never ended, and the peatland fires will constantly be recurring.

## 10. KEYWORDS

Conflict, natural resources, peat water-sharing, peatland fires, collaborative action

## 11. HASIL PELAKSANAAN PENELITIAN

### **Uncertainty**

Conflict over water and the seasonal peatland fires in the biosphere's transition zone were the two main uncertain issues relating to the turning point of collaborative action. Based on the NVivo interview analysis, villagers, convener, local authorities, and ENGOs questioned why the timber company withheld water during the dry season while doing the opposite during the rainy season. Although unsustainable land clearance by using fires for agroforestry with palm oil as the main crop

had been practiced for a long time by villagers, both ENGOs and local authorities saw that the peatland fires occurred because of water retention by the timber company. On the contrary, the timber company faced an uncertain regulation relating to the water level in the concession area and water infrastructure readiness in the community forestry area. The representative of the timber company stated:

“The water table in our concession should be 0 cm or + as our concession is in the peat dome. We need to follow that regulation [0 cm in peat dome] from the Ministry of Environment and Forestry (MoEF). That is why during the dry season, we close our canal gates. Besides, if we share our water downstream, we never know how many metric liters of water the villagers need”.

All parties were also unsure about what kinds of action they should take to mediate the conflict. Both villagers and the timber company each had a negative assumption about the other’s actions and attitudes. For example, one of the villagers said that "We want the timber company to leave our village. Before they came here, we used fires for our land utilization, but there were no [peatland] fires. Peatland fires had occurred since the company developed hundreds of canals in their concession." The timber company representative contrarily argued that the unsustainable land clearing practice villagers conduct was the main driver of peatland fires (Interview 9a). Both villagers the sub-district office with ENGOs' support opposed the timber company's business activities. The sub-district office representative said: "The peatland in our district has gotten dryer and dryer due to the canal development in the concession areas." Due to these opposing expectations, the conflict was far from being resolved.

Although numerous efforts had been applied to deal with the fires, the conflicting parties were doubtful of its consequences. For example, the villagers were unsure whether the 17 canal blockings developed with the help of WWF and REDD+ financial support were able to rewet the dry peatland. By 2016, the village office also established the Fire Care Community (FCC). Every day, three of its 20 members conducted a voluntary fire patrol around the village area. However, the village office representative said, "Even though we have 17 canal blocks here in the village with the help of WWF and REDD+ financial support and we have also established the FCC, the fires still occur, and we need to focus on fire mitigation by building more canal blocks, not to fight with the peatland fires". Simultaneously, the timber company was uncertain about sharing water, particularly in terms of whether the local community is ready with the infrastructure required. The company representative mentioned:

"If we share our water downstream, we never know how many metric liters of water the villagers need. They [villagers] are not ready with the water infrastructure. Many canals in the

village area are not properly functioning, which means that the village is not ready to receive water from upstream".

### **Interdependence**

The conflicting parties were mutually dependent upon one another. The peat fire mitigation was beyond one party's capability to handle. Both villagers and the village office had less financial sources to build canal blocks and normalize the unfunctional ditches. Although the village office had annual funding allocated by the national and local governments, the budget allocation was mainly for basic infrastructure and human development such as roads, irrigation, education, health, and cultural events. During the interview, the village office leader said: "We [villagers and village office] cannot build the canal blocs and normalize the [unfunctional] ditches. Those are high cost. We prioritize the budget for basic development such as road maintenance and education, and there is no special budget transferred from the local and national governments to mitigate peatland fires".

The timber company was also interested in resources sharing such as authority and legitimacy. We define "authority" and "legitimacy" as formal and moral justifications to make a decision or intervention (Gritten and Saastamoinen 2010). As an example, to intervene in the area outside its concession, the timber company required an official invitation from the village office and a clausal agreement for research purposes with the TPSP. According to the Indonesian forest regulation, the status of community forestry area in the village is a state production forest. Without an official permit from the MoEF, the forest should be free from any business activity. However, with the village office's official invitation and the clausal research agreement with the TPSP, the timber company could legitimately conduct canal normalization and participate in the canal blocking development. The timber company representative affirmed:

“We [the company] always follow government regulation. You know the community forestry area is a state production forest. We [the company] need legitimation to intervene in the area. After having a consultation with the MoEF we, finally, found that research activities can be [be included as] a clause on the agreement between TPSP and us to do the canal normalization. We also need an official letter from the village office. They [the village office] are the authoritative government representation in the grassroots.”

Moreover, all parties were respectively dependent upon mutual knowledge sharing. The interview and observation data had shown that to plan the coordinate of the canal blocking sites, TPSP researchers used the primary Geographical Information System (GIS) layer developed by experts of the timber company based on the area's topography. To measure the water level in the community area and to calculate the water volume in the canal blockings, the researchers also used the 15-years

rainfall record data from the timber company. In return, the TPSP researchers shared the water volume data recorded in the community area to the timber company. A TPSP facilitator explained as follows:

"Yes, we used the basic layer from the timber company [the contour data]. The layer was helpful to plan the canal blocking construction with the PCC members. Before, we had no idea about the topography of this area. They [the timber company] gave us the rainfall record from the LIDAR data they bought. The data is expensive. So, we [TPSP] appreciate the company's [contribution]."

In the canal blocking construction process, all parties such as PCC, village office, and the timber company agreed to utilize the canal blocking infrastructure model introduced by a TPSP researcher from a local university who was also a hydrological expert of the IPRA. However, despite considering the scientific approach, TPSP researchers always paid attention to the local knowledge of villagers in the process since the PCC members have had experiences working on canal blocking construction with WWF and REDD+ project. The PCC members also informed TPSP researchers and facilitators for any potential conflict of interest in the area where the canal blocks would be built. The PCC members also guided the timber company excavator operator in canal normalization, and they negotiated with the forest owners alongside the normalized canals. A TPSP facilitator stated the following:

"Before developing the canal blocks, we always discuss with them [the villagers and PCC members] because we do not know about the existing situation in the area. They [PCC members] will tell us about any possibility of conflict. This effort is important to minimize conflict, for instance, if the owner is not satisfied with our activity. They [PCC members] also have many ideas on how the canal blockings should be developed based on their experiences working with the WWF and UNDP funding. We have a weekly meeting with them where we can share ideas relating to the rewetting programs in this village."

### **Consequential incentives**

Although the peatland fires had been a challenge to the villagers for a long period time, they did not consider canal blocking construction a priority since they were focused on their daily activities to fulfil their family's economic income. The PCC leader asserted, "People, here, prioritize their activities for something which have a direct benefit [income]. They think it is how to fulfil their family needs, such as sending their children to tertiary education and buying food. We [villagers] do not prioritize our efforts on how to rewet the degraded peatland. We know peat fire is always a challenge for us but feeding [our] family is much more important." Based on the first author's observations, almost all villagers depended on their income obtained by planting palm oil trees and

hardening natural rubber. Through the TPSP funding, the villagers had an opportunity to mitigate the peatland fires and get additional income from their involvement in the project. Every collaborative activity such as constructing canal blocks, normalizing unfunctional canals, and monitoring the water table, when PCC members were actively involved in the process, was paid with the basic daily fee.

A TPSP facilitator stated:

“For canal normalization and canal blocking developments, we pay them [villagers/ PCC members] between 100,000 and 200,000 IDR [7 – 15 USD] per day. This money is not a real fee, to replace their working time. Many people’s lives here depend on a daily income. If they do not work for a day, such as harvesting fresh fruit branches for a palm oil landlord, they will have no money. For water monitoring, we hired four young villagers who are given a monthly salary because they work every day, in the morning and afternoon, and our researchers also use [the data] for a hydrological research purpose.”

The TPSP researchers also obtained mutual benefit in the form of research data from the research they were conducting in the village. For example, every two months, a TPSP researcher who is also a professor of hydrology from Japan regularly came to the site with his PhD students to analyze the characteristics of peat water flow in the normalized canals (Interview 9c). Another TPSP researcher from a local university, with financial support from NASA, conducted a research project relating to the effect of canal blocking construction toward water level availability in the degraded peatland (Interview 9b). In collaboration with the Centre for International Forestry (CIFOR), two TPSP researchers from a local university and a senior researcher from Japan regularly monitored the effect of rewetting on the growth of native peat plants in the community forestry area (Interview 9a). According to a TPSP researcher, one of the TPSP program outcomes was in the form of a research publication (Interview 9a). During the observation, in a meeting, the head of the local university's research institute also emphasized that one of the clauses agreed upon with a university from Japan was to help the local researchers in international article publication.

Both the timber company and the village office faced a challenge in dealing with national regulation and political pressure from the top authority. The current regulation issued by the MoEF, following Ministerial Regulation No. 32/2016, has stipulated that timber companies are responsible for fire mitigation five kilometers outside its concession. The timber company representative confirmed, "Since 2018, we are required by the MoEF to take responsibility for areas five kilometers outside our concession boundaries. Previously, it was voluntary." In the current Indonesian administrative regime, the vertical government institutions at the grassroots level, such as the sub-district and village offices, are under political pressure from higher administration levels. Since 2016, the Indonesian president, Joko Widodo, has announced that he would remove police and military commanders who



put in minimum efforts to mitigate forest fires in their jurisdiction (Cabinet\_Secretary 2018). During the interview, both the sub-district and village office leaders confirmed that this presidential statement has also had an effect on the local administration's burden of work. The leaders were regularly required to report the fire situation to the sub-district police and army stations (Interview 4a and 5b).

### **Role of convener**

The TPSP had played the role of a convener working on facilitating conflict resolution and initiating collaborative action in the village. Both the villagers and the timber company perceived TPSP as a neutral actor with no close affiliation to any conflicting parties (Interview 1a, 1b, 2a and 11a). The TPSP researchers and facilitators came from international and local higher education institutes free from any conflict of interest (Interview 4b and 11a). With the administrative and legal support from the IPRA, the TPSP received its formal authority to negotiate with the timber company and to organize local level government institutions, such as village and sub-district offices (Interview 9a). IPRA was a national institution at the ministerial level that directly relates with the Indonesian president to restore degraded peatland in the community areas (Presidential Regulation No. 1/2016). Both the TPSP researchers and facilitators had also patiently worked to elaborate the timber company wishes and local community interests and to find the common goals between the conflicting parties, such as through FGDs and regular meetings at the village office (Interview 9c and 9d).

The TPSP researchers were hydrologists, biologists, and forest scientists, while the facilitators were experts of community empowerment and development. Based on their expertise, the TPSP researchers were able to address the timber company's uncertainty regarding the water volume required and they were able to present scientific-based evidence to prove the positive effect of canal blocking construction (Interview 11b). Simultaneously, the TPSP facilitators have a long experience in building relationships with the villagers. During the interview, a local villager said that the TPSP facilitators not only conducted regular meetings with PCC members but also participated informally in the local community's religious and cultural events (Interview 1c). Through such kind of personal approaches, the facilitators have reassured the local community that the timber company is committed to sharing the water and the development of canal blocking had a positive effect on rewetting the degraded peatland.

Through financial support from JICA, TPSP funded all negotiation and collaborative processes. For example, TPSP provided gasoline for the excavator operations during the canal normalization, covered all expenditures in the canal blocking development process, and facilitated all FGDs, workshops, and meetings among the parties conducted in the village and in the capital city of Riau province (Interview 9c). Professionally, TPSP employed its international and local facilitators and

hired four young PCC members to calculate the water volume and water table in the community forestry area. One of the TPSP facilitators attested:

"We [facilitators] are four persons, but only three stay here [in the village]. Another person is Japanese, and she is an expert on rural sociology. She has a long experience working on community empowerment in Indonesia. We receive a monthly salary. There were about 50 applicants who wanted to work with this project as facilitators. Luckily, we passed the written and interview test."

Lastly, TPSP was able to identify the mutual goal of all actors involved in the collaborative action. For example, all parties expected the biosphere transition zone to be free of peatland fires (Interview 2b, 4a, and 5b). Villagers were frustrated by the planted forest burning repeatedly (Interview 1c). The village and sub-district offices worried about the effect of peatland fires on public health (Interview 4c and 5a). Existing research also shows the effect of forest fires on the rate of mortality, asthma, and air pollution (Sheldon and Sankaran 2017). During the interview, the timber company representative said they used to allocate a huge financial resource to deal with the fires without collaborative action (Interview 11a). The collective action has made their effort more efficient (Interview 11a). Moreover, Indonesian peatland fires had become an international concern. The smoke from the Sumatra fires directly passed to neighboring countries such as Malaysia and Singapore, releasing a huge amount of carbon. As an example, throughout 2015, the Indonesian rate emission contributed 11.3 GT CO<sub>2</sub> per day, exceeding the fossil fuels CO<sub>2</sub> production (8.9 GT) (Huijnen et al. 2016).

## **12. STATUS LUARAN**

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## **13. PERAN MITRA**

Data analysis and discussion.

## **14. KENDALA PELAKSANAAN PENELITIAN**

1) Data transcription, 2) Data management, and 3) data analysis.

## **15. RENCANA TAHAPAN SELANJUTNYA**

Working with policy brief draft.

## **16. DAFTAR PUSTAKA**

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