

Living Harmoniously with the River Again: Case Study of the Urban Ecoriparian CSR Program by PT Pertamina Patra Niaga Aviation Fuel Terminal Halim Perdanakusuma

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Abstract. In many places around the world, riparian areas of rivers serve as arenas for both livelihood and conflict among various stakeholders. This is also true for the riparian area of the Ciliwung River in Cawang Village, East Jakarta, Indonesia, which possesses unique social, ecological, and political dynamics that can serve as a reference for studies on riparian zones in urban settings. By focusing on the journey of the Urban Ecoriparian Program initiated and implemented by the Kelompok Tani Saung Cawang and the Kelompok Siaga Air Ciliwung in collaboration with the CSR team of PT Pertamina Patra Niaga AFT Halim Perdanakusuma, this qualitative study highlights flood disaster mitigation efforts that have been in place since 2021. The findings of this study reveal, *firstly*, that the flood issues in the Cawang riparian area are not merely environmental problems but are also deeply rooted in social and political issues. *Secondly*, these issues are being addressed through the Ecoriparian Program by adapting to the unique challenges and experiences of the Cawang community, which has developed an involutive adaptation pattern to floods. *Thirdly*, this program's alignment with the community's adaptation pattern has led to broader acceptance and active participation from the Cawang community. *Fourthly*, the program has spurred various transformations, including individual, collective, and even political changes, as it has influenced and resulted in flood management policies at the village level. *Fifthly*, the resulting village-level policies demonstrate that the program has also contributed to political education for the Cawang community.

Keywords: Human Ecology, Political Ecology, Riparian, Urban Ecoriparian.

A. INTRODUCTION

According to various studies, human anthropic activities in riparian zones have significantly contributed to altering and reshaping the functions of rivers (Swanson et al., 1982; Vieira et al., 2024). A similar phenomenon occurs along the Ciliwung River riparian in Cawang Village, East Jakarta, Indonesia, where the river frequently overflows onto land, causing floods. Despite this, the flood-prone riparian area is still inhabited by nearly one million people living in riverbank settlements stretching from West Java to Jakarta (Mardjono, 2013). At this point, rivers can no longer be understood as static environmental entities; rather, riparian zones inhabited by humans are dynamic ecosystems where interactions between humans and the environment continuously evolve (Dunham et al., 2018).

Similar to previous studies on human-river interactions, one conducted by Caro-Borrero et al. (2021) in the micro-watershed of the Magdalena River found that urbanization and poor local governance have negatively impacted not only the river's ecology but also the social conditions of riverbank communities. The mismanagement process has posed significant threats to the availability of freshwater for residents who heavily depend on the Magdalena River as their water source. A similar study, though in a different setting, was conducted in the Duero River Basin, Mexico, by Zermeño-Hernández et al. (2020), where it was found that

human activities have had a negative impact on the riparian ecology of the Duero River. In this study, human activity emerged as a negative contributor to the environment. Moreover, another study in North America revealed that the richness of bird species in riparian zones has declined due to rapid urbanization around these areas (Miller et al., 2003).

However, a somewhat different perspective was offered by Vidon, Welsh, and Hassanzadeh (2019), who observed that riparian zones could serve as areas that help reduce contaminants, particularly mercury (Hg). This study indirectly relates to the issues of the Ciliwung River, which has long been polluted with hazardous substances, including large amounts of mercury (Hg) (Ismi et al., 2019). This study also provides hope for further riparian zone studies, which should not only focus on water quality but also consider other aspects, such as recreational areas and ecosystem services. This perspective is echoed by Fonseca et al. (2021), who suggested that riparian zones, which are essentially natural and semi-natural areas, are predominantly inhabited by humans. Therefore, according to them, humans in riparian zones need to sustainably manage the land in these areas to contribute not only to enhancing vegetation composition and biodiversity but also to human well-being.

This study specifically aims to investigate the socio-ecological issues in the Ciliwung riparian area, particularly in Cawang Village, by examining two interrelated aspects: *first*, the community's perception of the river as a hazardous source of disaster and the river as a life-sustaining entity; and *second*, the study focuses on the praxis of the Urban Ecoriparian CSR Program implemented by community groups in collaboration with PT Pertamina Patra Niaga AFT Halim Perdanakusuma, which has been planned and executed since 2021 to address the socio-ecological challenges of the Ciliwung riparian area in Cawang Village. The praxis of this program has driven various transformations that position the socio-ecological issues surrounding the riparian area into a beneficial praxis for both humanity and the environment.

B. METHODS

This study was conducted in a specific location in the Ciliwung River riparian area in Cawang Village, East Jakarta, which has a long-standing history of the complex relationship between humans and their environment. This specific location was chosen because the human-environment relationship in this area not only demonstrates adaptive or conflicting interactions but also highlights how the Cawang riparian has become a politically charged arena that has been reshaped and restructured. This situation is likely due to Jakarta's emergence as a prime destination for migrants since the 1990s, with extensive land development efforts to transform Jakarta into a metropolitan city (Winarso, Hudalah, and Firman, 2015). As a result, riparian areas, even those in the heart of Jakarta, have become fiercely contested spaces.

To comprehend these dynamics, this study employed a qualitative approach using a single case study method (Gustafsson, 2017), focusing on the specific case of the Ciliwung riparian area with two conceptual frameworks: human ecology and political ecology. These two conceptual frameworks were used to examine the specific efforts, particularly the implementation journey of the Urban Ecoriparian CSR Program, carried out by at least two community groups in Cawang, including the Siaga Air Ciliwung (SAUNG) group and the Kelompok Tani Saung Cawang, in partnership with PT Pertamina Patra Niaga AFT Halim Perdanakusuma since 2021. The implementation of this program, which did not merely rely on the intensive governance practices of the Cawang riparian area, has also driven the formulation of regulations at the village level, establishing clear guidelines on the critical need to protect the riparian area for the sustainability of riverbank communities.

C. RESULTS AND DISCUSSION

1. The Complex Issues of the Ciliwung Riverbank: Polemic, Potentials, and Solution

As many researchers have conducted studies on the Ciliwung riparian area, where the river flows through Jakarta, environmental and poverty issues have also been depicted by literary figures in various works of literature that discuss life along the riverbank (Setiawan, 2021). These conditions further prove that, although the disasters occurring along the Ciliwung Riverbank such as flooding, hazardous waste pollution, and garbage accumulation, which affect human life seem like cliché problems (Miller and Douglass, 2015), they persist and remain unresolved. Numerous studies have explored the complex issues of the Ciliwung Riverbank from upstream to downstream. For instance, Prastiyo, Kaswanto, and Arifin (2020) highlighted various issues along the upstream Ciliwung River, specifically in Bogor, West Java. According to them, one of the main problems upstream is the massive conversion of land into residential areas along the riverbank.

As a result of this behavior, land that was once available for agroforestry in the riparian area is increasingly disappearing. Due to this land conversion, forest gardens, mixed gardens, and even home gardens that were previously used for agroforestry activities have become increasingly scarce and have disappeared. This study at least provides a general overview of the conditions in the upstream Ciliwung River. Meanwhile, another study, particularly by Noviandi, Kaswanto, and Arifin (2017), revealed similar findings, noting that 37.11% of the riparian area in the middle section of the Ciliwung River has been converted into residential land. Although the percentage is not very large, according to them, the middle riparian area of the Ciliwung River is wider than the upstream or downstream areas. Based on these data, which describe the conditions of the upstream and middle riparian sections of the Ciliwung River, one may wonder about the condition of the downstream area where the Cawang riparian is located.

There are various complex issues in the downstream riparian area of the Ciliwung River, where the region can be described as the recipient of upstream and middle section problems. The issues in the downstream area are similar to those mentioned by researchers studying the upstream and middle sections. However, there is a significant difference in that the level of hazardous substance pollution in the downstream river is much higher than in the upstream. This was demonstrated by Ismi et al. (2019) in their research on the content of substances in pleco fish at a spot in the downstream Ciliwung, where high levels of arsenic (As), lead (Pb), cadmium (Cd), mercury (Hg), and tin (Sn) were found in the fish. This indicates not only that the fish are unfit for consumption but also highlights the dangerous level of water pollution that threatens aquatic life and the people living along the riverbank.

Furthermore, people living along the riverbank are not only at risk of exposure to hazardous substances but are also threatened by flooding, as explained by Mardjono (2013), who studied the downstream Ciliwung River, particularly in the Cawang-Manggarai riparian area. Given these various disaster-prone conditions, the riparian area is a dangerous place to live. However, leaving the riparian area for another location is also a complicated issue. Moreover, for some people, living in the riparian area is a viable option because of its proximity to livelihood opportunities, such as being near workplaces. This is why, reflecting on various cases of river normalization that often end in conflict (Smith, 2017), the perspective underlying these efforts is sometimes vastly different from how people, despite the difficulties of living in the riparian area, have developed unique ways of adapting to the environment.

Based on this context, even though riparian areas are surrounded by various social issues such as poverty, are vulnerable to disasters like floods, and are laden with urban pollution such as water, air, and even noise pollution, they still serve as the livelihood areas for residents. This is especially true in the Cawang Subdistrict, where, despite regular flooding, particularly from upstream (Suryandari et al., 2024), adaptation is often preferred over leaving the area.

This reality is further supported by the research of Maring, Hasugian, and Kaligis (2015) on the character and adaptation patterns of the Ciliwung Riverbank community, particularly in Kampung Melayu and Cawang. According to these researchers, the character of the community is recurrently influenced by their adaptation patterns to local issues, such as flooding.

This research is similar to Haller's (2019) study, where the boundaries of community characteristics and even communal land ownership in certain areas are sometimes influenced not by rigid borders set by the state but by flood patterns. This condition is similar to the Cawang community, which has a unique adaptation pattern, described by Maring, Hasugian, and Kaligis (2015) as involutive adaptation, where regular flooding significantly determines the community's steps in considering whether or not to innovate, including in determining riparian area management. Therefore, according to them, this adaptation pattern can hinder innovation, even though external innovations, such as those from the government, are often not well received by the Cawang community because they do not align with the reality they experience and perceive.

Consequently, what the research emphasizes is that the Cawang community tends to empower themselves, using methods and actions that align with the realities in the Cawang riparian area that they can better perceive and face, especially regarding floods. It is at this point that the program initiated in Cawang Subdistrict, in collaboration with PT Pertamina Patra Niaga AFT Halim Perdanakusuma, namely the Urban Ecoriparian Program, is more sustainable and can be implemented by two community groups in the subdistrict because it does not contradict the community's spirit of self-empowerment. This is different from the river normalization practices advocated by the local government or recommended by various studies, which consider river normalization as a suitable solution for addressing flooding. In reality, river normalization, which is often coupled with community relocation, is very much at odds with various social processes and should require a long process to implement (Maring and Prakosawati, 2019).

At this point, programs that align with the community's adaptation patterns rather than those that tend toward relocating the community, although requiring a long time and intensive mentoring, are much more accepted. This is because such programs align with the community's involutive adaptation patterns to flooding. This means that, no matter how small the community's efforts to coexist with the floods that regularly inundate their homes, staying in the riparian area is both a choice and a necessity. This reality also reflects another aspect, where the Ciliwung River and its riparian area do indeed present several issues, such as disaster vulnerability and poverty, but the Ciliwung River is also a livelihood arena for the Cawang community. Further community development in the riparian area cannot be separated from the community's attachment to the river.

Therefore, the Urban Ecoriparian CSR Program implemented by two community groups in Cawang, including the Kelompok Tani Saung Cawang and the Kelompok Siaga Air Ciliwung, in collaboration with PT Pertamina Patra Niaga AFT Halim Perdanakusuma, can be considered as one of the solutions for the Ciliwung riparian area that aligns with the characteristics of the community, which has an involutive adaptation pattern. The program, which has been implemented since 2021, does not conflict with the typical characteristics of the Cawang community, which tends to resist river normalization patterns that threaten their livelihood. On the contrary, this program marks the riparian area as a more vibrant region continuously enlivened by the Cawang community through various ecoriparian program implementations. This is why, despite its simple praxis, the ecoriparian program is quite effective. The program's implementation combines urban farming practices, the dissemination of knowledge about disaster mitigation, and efforts to enhance economic welfare through the empowerment of the local community.

This means that the program is not merely focused on a single solution, such as addressing environmental issues like flooding through river normalization, which fundamentally could lead to the displacement and endangerment of vulnerable communities. Instead, this program is comprehensive, taking into account various social, cultural, economic, and environmental aspects. The program also accommodates the interests of the Cawang community, which has an involutive adaptation pattern that is not merely about survival amid environmental degradation but also encompasses economic and political aspects. Therefore, the approaches to addressing the various issues faced by the Cawang community cannot be singular. In addition to not being able to rely on a single solution, such as purely environmental approaches, the efforts to rehabilitate and develop the riparian areas within the city of Jakarta, whose degradation is deeply concerning, cannot be quick and instantaneous. Below is a table of the Urban Ecoriparian Program implementation that has been carried out over the past four years in the Cawang Subdistrict:

Table 1. Urban Ecoriparian Program Implementation 2021-2024

Year	Program Implementation
2021	<ul style="list-style-type: none"> ● Survey of the Ciliwung riparian area in Cawang Subdistrict ● Formation of 2 community groups
2022	<ul style="list-style-type: none"> ● Agricultural training ● Provision of agricultural infrastructure ● Provision of horticultural plant seeds ● Organizational management training ● Technical assistance for activities ● Monitoring and evaluation
2023	<ul style="list-style-type: none"> ● Flood management training ● Composting training ● Provision of composting infrastructure ● Technical assistance for agricultural and composting activities
2024	<ul style="list-style-type: none"> ● Basic life support training ● Provision of water-saving irrigation infrastructure ● Pest control development ● Technical assistance for agricultural, composting, and natural pest management activities ● Monitoring and evaluation

Source: Compiled by the Authors Based on Various Program Documents (2024)

Based on the table above, the praxis of the program to address various complex issues in the Cawang riparian area has been implemented gradually, indicating that the program has been accepted and continues to be carried out to this day. Moreover, the implementation of the Urban Ecoriparian program touches on various environmental, social, economic, and even cultural aspects. For instance, this program is carried out by two main groups, including the Kelompok Tani Saung Cawang and the SAUNG Group. Notably, these groups consist of vulnerable individuals, such as the elderly and residents still living below the poverty line (Company Social Innovation Document, 2024). These vulnerable individuals are empowered

within the program to cultivate various horticultural crops and also to plant woody trees to mitigate flooding.

Additionally, for the elderly, urban farming activities are very effective in filling their increasingly abundant free time as productive activities become fewer. Moreover, this urban farming activity has also spurred the development of a water-saving irrigation system. Although they live in the riparian area of the Ciliwung River, the water, which is contaminated with various hazardous and toxic wastes, is not suitable or is less suitable for irrigation purposes. Therefore, a water-saving irrigation channel was constructed to irrigate the plants, particularly horticultural crops, which require special care and should not be contaminated with harmful substances. Furthermore, considering the limited land available around the riparian area and in the midst of one of the most densely populated cities in the world, Jakarta (Martinez and Masron, 2020), intercropping systems are also applied in urban farming. This system involves planting two types of crops on the same land horticultural crops and woody trees so that when irrigation is used to water the plants, the water flowing through the irrigation can be efficiently and effectively utilized to water both types of plants simultaneously.

This water-saving irrigation can be easily used to water productive plants such as water spinach, spinach, peanuts, cassava, horn bananas, and *kopyor* coconuts. Additionally, the irrigation can be used to water long-term woody plants that are planted beside or among the horticultural crops. In the praxis of intercropping, this water-saving irrigation becomes increasingly efficient. Moreover, aside from the water-saving irrigation, which reflects efforts to conserve water in Jakarta, where water quality is deteriorating, and the availability of clean water is becoming increasingly scarce by the day (Sagala and Luo, 2015), the practice of urban farming with intercropping systems also positively contributes to the environment. Although it is not a large-scale farming practice like in some rural areas that still have land available for cultivation, the urban farming practice implemented by the Kelompok Tani Saung Cawang has been practicing low-emission farming, producing only 0.96 Ton Eq CO₂ (Company Social Innovation Document, 2024).

Although this agricultural praxis has not yet addressed structural solutions, it has contributed cumulatively at the macro level (De Pinto et al., 2016). These efforts are effective when replicated in many other densely populated urban areas that still have narrow strips of land that can be utilized. Moreover, alongside the urban farming praxis specifically implemented by the Kelompok Tani Saung Cawang, the dissemination of knowledge on waste management has also been promoted and applied by the SAUNG Group. Non-toxic and non-hazardous waste (non-B3) is processed by the group through composting, which can be used as fertilizer. Thus, in urban farming praxis, the group has so far been able to utilize 1.825 tons of processed organic waste as fertilizer (Company Social Innovation Document, 2024). This organic waste management praxis has enhanced the efficiency and effectiveness of horticultural plant care by reducing the use of inorganic fertilizers.

In addition to urban farming activities, under the same program, the dissemination of knowledge on disaster mitigation and even climate mitigation has been promoted and pioneered by the SAUNG Group. Various training sessions have been conducted for the group and the broader Cawang community, facilitated by the CSR program of PT Pertamina Patra Niaga AFT Halim Perdanakusuma, focusing on disaster response and basic life support training. In the practice of disseminating disaster mitigation knowledge, the SAUNG Group has encouraged the broader Cawang community to form resident communities that engage in various activities, including preventive, educational, coordinative, and collaborative efforts to manage riparian disasters such as flooding. The results have been significant. *First*, along with other groups like the Kelompok Tani Saung Cawang, they have engaged in preventive, educational, and collaborative efforts in the implementation of urban farming. The hope is that

the roots of the woody plants cultivated in urban farming will help prevent erosion of the cliffs and the banks of the Ciliwung River.

Second, in terms of disaster coordination, continuous discussions between the groups and the Cawang Subdistrict head, as well as other stakeholders in Cawang Subdistrict, have resulted in a policy titled “Decree of the Cawang Subdistrict Head, Kramat Jati District, East Jakarta Administrative City on Community Empowerment Through Optimizing the Role of Residents in Aksi Siaga Air Ciliwung “ (Company Social Innovation Document, 2024). This decree serves as a foundation for the residents of the Cawang Subdistrict in handling disasters from the Ciliwung River, such as flooding. The efforts of the SAUNG Group, which resulted in policy formation in Cawang Subdistrict, demonstrate that the program not only accommodates the community’s adaptation patterns conceptually aligned with the concept of human ecology (Filatova et al., 2020) but also that the SAUNG Group’s efforts to advocate for disaster mitigation policies in Cawang Subdistrict align with the concept of political ecology (Blaikie, 2016). Consequently, the praxis that aligns with both concepts has yielded significant results, as evidenced by the “nearly good readiness” level of 64% in the Cawang community’s preparedness for the recurrent flooding disasters in the Cawang riparian area (Suryandari et al., 2024). Furthermore, the subsequent section will explain how the praxis carried out by these two groups in implementing the Urban Ecoriparian Program can be interpreted through the lenses of both human ecology and political ecology.

2. From Human Ecology to Political Ecology: Delving into the Praxis of Urban Ecoriparian

The previous explanation clearly outlined that the Cawang community in the Ciliwung riparian area exhibits a distinctive, involutive adaptation pattern. This adaptation pattern follows the routine flood events that hit the Cawang riparian area, where the Ciliwung River’s waters can surge into residential areas. The Cawang community engages in this adaptation to survive in the riparian area rather than leaving it, as their livelihoods, encompassing economic, social, and cultural aspects, are at stake. In anthropology, this community adaptation pattern is specifically studied through the concept of human ecology (Filatova et al., 2020). The concept of human ecology can be utilized to trace human behavior that tends to be uniform when communities adapt to their environment (Moran, 2022). A portion of the Cawang community exhibits characteristics that align with an adaptation pattern that does not compel them to leave the riparian area where they live despite the high disaster vulnerability, such as floods.

However, the concept of human ecology has faced various criticisms, primarily for not acknowledging that environmental issues are inherently political (Dryzek, 2022). This criticism is relevant in cases where the adaptation practices of a community may indeed allow them to survive for an extended period. Yet, this long-term survival can abruptly change due to certain political policies that force people to leave specific areas, as often occurs in the Ciliwung riparian area due to government programs like river normalization (Maring and Prakosawati, 2019). Therefore, this section will delve deeper into the analysis of praxis activities that align with both the principles of human ecology and political ecology (Blaikie and Brookfield, 2015; Moran, 2022). This deeper analysis is necessary to understand the tendencies of this program’s praxis, which inherently involves various implementations that consider not only the community’s perceptions of their environment but also the political dynamics in the riparian area, which is a contested space among multiple stakeholders, where the Cawang community is also politically engaged.

At this point, human adaptation to the surrounding environment, often discussed through the concept of human ecology, in this case, intersects with the concept of political ecology. However, this intersection becomes visible and operative only when the community’s

adaptation patterns are accepted within the framework of political policies. For instance, considering the background of the Urban Ecoriparian Program, the company first conducted a social mapping of the Cawang community, revealing various social, economic, and environmental issues. Based on this mapping, solutions to the flood-related problems in the riparian area, which are intertwined not only with environmental issues but also with social, economic, and even political issues, were developed. The company also ensured that the solutions to the riparian problems in Cawang did not conflict with existing political policies. Consequently, based on the identified issues, there was a need for community activities that adhered to disaster mitigation principles.

However, it was also essential to ensure that these mitigation activities did not contradict government regulations. At this point, the Ciliwung riparian area has always been a battleground of interests among various parties. Nevertheless, thanks to the company's social mapping efforts, the justification for managing the riparian area for various activities, such as planting woody and horticultural plants, was highly feasible as long as it did not interfere with the river's functions. This justification was obtained based on the "Regulation of the Minister of Public Works and Public Housing of the Republic of Indonesia Number 28/PRT/M/2015 concerning the Determination of River and Lake Borderlines in Article 22" (Company Social Innovation Document, 2024). Subsequently, continuous discussions were held to initiate the implementation of the Urban Ecoriparian Program in the Cawang riparian area.

In this praxis, two aspects are closely related to the concept of political ecology. First, environmental issues are not merely based on environmental reasons alone, but they are also influenced by political policies (Blaikie and Brookfield, 2015; Blaikie, 2016). This is particularly true in the case of environmental issues in the Ciliwung riparian area, which serves as both a livelihood arena for riverbank residents and a space that is highly susceptible to the impacts of river normalization, aggressively promoted by the Jakarta provincial government from one administration to the next (Putri, 2023). It is not uncommon for riverbank residents to be forced to leave their settlements due to river normalization, even though they live under uncertain conditions, threatened by various vulnerabilities such as economic and disaster-related risks. This is why the characteristic of riparian area management that aligns specifically with the community's adaptation patterns and does not conflict with government political policies represents the second indication that the praxis of the Urban Ecoriparian Program has, from the outset, adhered to the principles of political ecology.

However, the principle of political ecology in the initial praxis of the program is distinct in that the community's adaptation patterns are aligned with the political policies governing them. At this point, the integration of the concepts of human ecology and political ecology emerges within this program. Furthermore, after the program was justified in accordance with government regulations, it was then fully implemented, beginning with discussions with the Cawang community, which eventually led to the formation of two main program management groups, including the Kelompok Tani Saung Cawang and SAUNG Group. Upon closer examination, the praxis carried out by these groups through their respective activities reveals that their endeavors are inseparable from each other.

On the surface, for instance, the urban farming activities implemented by the Kelompok Tani Saung Cawang tend to align with the community's involutive adaptation pattern, as evidenced by the practice of planting perennial plants, indicating that the Cawang community intends to remain in the riparian area in the future. On one hand, this praxis aligns with the community adaptation pattern that is closely related to the concept of human ecology (Bennett, 2017). On the other hand, a deeper analysis reveals that the praxis of planting both perennial and horticultural plants is necessary to justify that the Cawang community can manage the environment and adapt to floods without needing to be relocated, especially given the river

normalization efforts. Thus, in this praxis, the principles of human ecology once again merge with those of political ecology.

In this praxis, the adaptation pattern chosen by the community amidst the disaster vulnerability and economic instability signifies their determination to remain in the riparian area. At this point, the adaptation principle studied within the concept of human ecology practically reinforces the foundation of political ecology, where the riverbank community expresses it by enduring in the face of disasters rather than being relocated. Consequently, the Cawang community is even willing to undertake various efforts that can economically empower themselves while continuing to care for the environment and address disaster vulnerabilities like flooding. The various activities undertaken under the Urban Ecoriparian Program, implemented since 2021 and continuing to the present, have ultimately become the right choice for the community. Through this program, which has not been implemented in a short period, hope has been given to the group and the broader Cawang community that they have a future living in the Cawang riparian area.

This hope has finally been met with various achievements resulting from the consistent efforts of the group and the broader Cawang community to actively contribute to the Urban Ecoriparian Program. For instance, the Kelompok Tani Saung Cawang (SAUNG) consistently engages in discussions and builds networks with various community layers and other stakeholders at the government level, while also continuously holding discussions with the CSR division of PT Pertamina Patra Niaga AFT Halim Perdanakusuma. The group's achievements have been highly satisfactory, resulting in a village-level policy concerning disaster management from the Ciliwung River through the decision of the Cawang village head. This policy essentially strengthens and ensures that activities under the Urban Ecoriparian Program, such as urban farming and disaster mitigation methods, are not illegal. Activities such as urban farming, water-saving irrigation construction, organic waste management into compost, and even recent MSME activities through the sale of processed banana products, are all carried out in the riparian area without conflicting with government regulations. Additionally, the village-level policy ensures that disaster mitigation practices, especially flood management in Cawang, are no longer voluntary but have bound the Cawang community to work together in disaster mitigation efforts.

Finally, based from these current conditions, the flood issue in Cawang is truly no longer merely an environmental issue. The solution contradicts the logic of river normalization, which views the flood issue solely as an environmental problem and is a top-down policy from the Jakarta provincial government that often does not align with the local community's way of life (Serra-Llobet, Conrad, and Schaefer, 2016). By addressing the problem with a non-singular approach, it is now recognized, thanks to the Urban Ecoriparian Program, that the flood issue is a political problem one that arises and is difficult to address because it is influenced by political actions. Thus, the solution must also involve political actions. The actions taken by the two groups, Tani Saung Cawang and SAUNG groups, which also involve the broader Cawang community in influencing policy, have proven that these political methods can gradually address the flood problem.

After the implementation of the flood management policy, flood mitigation practices became more binding for the Cawang community. Beyond being binding, the content of the policy also incorporates disaster mitigation principles aligned with the community's adaptation patterns to flooding, such as planting hardwoods and horticulture as forms of educational and preventive flood management. Thus, reflecting on this reality, in the case of flood management and solution implementation, particularly in the riparian areas of Cawang, Jakarta, it is evident that these principles align with the concept of human ecology, which emphasizes community adaptation patterns to the environment. On the other hand, these adaptation patterns do not

conflict with political actions; rather, these adaptation methods have been incorporated into political policies at the village level. Disaster mitigation efforts, including urban farming, have even been documented and regulated in policies, alongside quick, coordinated, and emergency flood disaster preparedness.

Therefore, in the case of disaster mitigation reflected in the journey of the Urban Ecoriparian program in the riparian areas of Cawang, from adopting community adaptation patterns to flooding to influencing and producing policies, in practice, although it contains principles of human ecology, it cannot be separated from the principles of political ecology. So far, in the debate between these two concepts, particularly within political ecology itself, the question often arises as to where the ecology is within political ecology, and conversely, where the politics is (Walker, 2005, 2007). Addressing the social, environmental, and even political issues related to flooding in Jakarta, particularly in the riparian areas of Cawang, and examining the practical implementation of the Urban Ecoriparian Program, actively carried out by the Cawang community, it becomes clear that human ecology and political ecology are not mutually exclusive concepts. Instead, these two concepts complement and reinforce each other.

This means that the adaptation patterns of the Cawang community in dealing with regular flooding in riparian areas are no less political than government policies regulating riparian areas. This is because these adaptation patterns embody the community's determination to remain in riparian areas, even if it means employing various strategies to survive and adapt to an environment regularly impacted by flooding. The Urban Ecoriparian Program, facilitated by CSR PT Pertamina Patra Niaga AFT Halim Perdanakusuma, has created excellent opportunities for the community to safely continue living in riparian areas. The following section of this paper will explain how the program's successes and achievements further reinforce that with continuous disaster mitigation efforts, the community can live safely in riparian areas.

3. Living and Sustaining the River: Reflections on the Success of the Program

The previous section extensively discussed the conditions of the riparian areas in Cawang, which, despite being extremely hazardous due to regular flooding, continue to serve as the settlement and livelihood of the Cawang Subdistrict community. Rather than choosing to relocate, the Cawang community tends to opt for various adaptive strategies to cope with flooding. Therefore, when the Urban Ecoriparian Program, led by two community groups and later involving the broader Cawang community, was introduced, the disaster mitigation and community empowerment program was actively embraced and implemented by the community. Although the practical implementation of the program required considerable time for nurturing, development, and involvement.

This section will discuss the program's achievements as a unique reflection for managing riparian areas, emphasizing the community's unique adaptation methods. Recognizing these unique adaptation methods can be used to identify the community's needs that align with the realities they experience and feel. Therefore, the entry of programs, particularly for disaster mitigation, should not reflect external viewpoints that could trigger resistance, as seen in the logic of river normalization. Instead, the program should prioritize the aspirations of the community, which has the potential to empower itself and already possesses distinctive adaptation patterns that need to be developed. Such approaches are essential to incorporate and design into the program. It is not surprising that the Urban Ecoriparian Program, shaped by these conditions, has been more sustainable and well-received, achieving numerous milestones as detailed in the 2024 Corporate Social Innovation Document, which clearly outlines the transformation of the program's various achievements.

First, the document mentions that the Urban Ecoriparian Program has driven social transformation both individually and collectively. This transformation reflects that the riparian area is not an uninhabited wasteland or a mere river-as-ecosociety (Boelens et al., 2023), but rather a dynamic social and political space where humans live and sustain the river and its riparian areas. Through this program, for instance, the Cawang community has developed greater awareness of organic waste management, particularly waste from harvest residues. This process has led to a transformation in the community's perceptions and behaviors regarding organic waste, which was previously discarded in trash bins or even into the river, but is now processed and used for organic fertilizer. This process also indicates the Cawang community's willingness to consistently learn new things, as long as it helps them continue living in riparian areas.

With a strong desire to learn, the Cawang community has now also increased its responsiveness to the frequent flooding disasters. This increase in individual responsiveness has cumulatively driven collective transformation in Cawang Subdistrict, fostering various agreements and new social practices, particularly in flood disaster management. Discussions and consensus on setting schedules for duty rosters, regular community work, and various other responsibilities indicate that flood disaster management is becoming an increasingly important issue. Such a condition is highly likely when individual habitus contributes to the collective category (Todd, 2005).

Furthermore, the individual habitus that has materialized in the collective category can also potentially drive the second form of transformation mentioned in the Corporate Social Innovation Document, namely legal transformation. The legal transformation, manifested in the collective efforts of the SAUNG Group and the broader Cawang community to influence and produce village-level flood management policies, also indicates a political transformation. Specifically, the transformation of individuals who have not merely remained ordinary citizens but have become political actors engaged in political actions. Referring to Miettinen's (2013) view, there is a "wonderful intertwining," or a bond within the community, that significantly determines the fate of the individual. Thus, whether they like it or not, these individuals collectively need to form social networks and collaborate with stakeholders to create flood management policies they recognize as crucial to their safety and survival.

Moreover, the existence of flood management policies, even though they only affect village-level policies, signifies that the Cawang community no longer expresses their political stance solely through involutive adaptation patterns by surviving in the riparian area. Instead, they have consciously employed democratic methods forged from the grassroots, where some group members, particularly those categorized as vulnerable, can now participate in determining village-level policies (Wood, 2000). This process is lengthy and indicates that political actions within the Cawang community can be more advanced and sophisticated than before. Previously, the Cawang community heavily relied on involutive adaptation patterns, surviving by various means in the riparian area, despite being regularly struck by floods. This survival method inherently contains a political element, as they do not wish to be displaced from their village due to various political policies such as the river normalization promoted by the provincial government.

Thus, adaptation patterns through urban farming or preventive flood disaster management, which have been promoted since the program's inception, are not sufficient to resolve the issues, necessitating additional activities that can influence policy. Flood issues in riparian areas, for instance, are not problems that can be addressed solely through consistent adaptation methods but also require political efforts. As Jimenez (2023) asserts, the key to a new approach for addressing broader ecological problems lies in political actions. This statement is particularly relevant in a large, densely populated, and metropolitan city like

Jakarta. In various areas within Jakarta, including riverine riparian zones with all their socio-environmental problems, these spaces are contested by various parties. Thus, surviving, for instance, in riparian areas also requires various political actions. What has not been widely recognized or highlighted among the program's achievements is that the Urban Ecoriparian Program has successfully provided political education to the group and has increased both individual and collective political awareness in Cawang Subdistrict.

D. CONCLUSION

The issue of riparian zones, particularly in the downstream part of the Ciliwung River, encompasses various complex problems, including environmental, social, and political issues. Floods from the upstream and midstream areas, pollution from various hazardous substances, and issues of poverty and the threat of eviction due to river normalization, all color the dynamics of life in the Cawang subdistrict, East Jakarta. In response to these challenges, since 2021, two community groups in the Cawang Subdistrict, namely the Kelompok Tani Saung Cawang and the Kelompok Siaga Air Ciliwung, in collaboration with the CSR of PT Pertamina Patra Niaga AFT Halim Perdanakusuma, have implemented the Urban Ecoriparian Program in the Cawang riparian area to address issues, particularly flooding. This program combines flood disaster mitigation with community empowerment through two main activities: urban farming and disaster preparedness.

This program has been well-received by the broader Cawang community as it aligns with the unique adaptation patterns of the Cawang community in facing disasters. Unsurprisingly, the program, with its primary partner being a corporate CSR, has been more accepted and has continued for four years. The program, which aligns with the Cawang community's involutive adaptation patterns, also reflects the concept of human ecology, where the community prefers to adapt and stay in the Cawang riparian area rather than leave, despite living amidst high disaster risk. Surviving amidst disasters through adaptation rather than abandoning the riparian area, which serves as the livelihood for the Cawang community, also solidifies their political stance to remain in the riparian area despite the difficulties. Thus, the political position of the community corresponds with the concept of political ecology, which in this case, in the riparian zone of central Jakarta, does not contradict human ecology but rather, it integrates with it.

The integration of the two concepts human ecology and political ecology illustrates a unique pattern where these two concepts have often been debated and seen as opposing each other. However, in this practical case study in the Cawang riparian area, these two concepts converge. The Cawang community's adaptation pattern to flooding not only aligns with the principles of human ecology, which emphasizes community adaptation to the environment, but also embodies the political stance of the Cawang community, who do not wish to be relocated from their homes in the riparian area, for example, due to river normalization. Instead, they choose to endure life surrounded by frequent floods that often invade their settlements. This is why, at the beginning of the Ecoriparian Program activities, which focused on urban farming, including the planting of hardwood and horticultural crops, the results of horticultural planting also contributed to increasing the economic income of the Kelompok Tani Saung Cawang. However, as the Urban Ecoriparian Program progressed, the group and the community were able to push for the establishment of village-level flood management policies in the Cawang subdistrict through preventive, educational, coordinative, and collaborative approaches.

The program, which aligns with the reality experienced and felt by the community regarding the frequent floods, has also resulted in various transformations, including individual, collective, and political transformations. Individual transformation is reflected in the change in individual perceptions towards organic waste management, where now, waste

from horticultural crops, which is organic, is no longer simply discarded into the trash or even into the river. Instead, organic waste can be processed into fertilizer to enhance the fertility of crops planted using intercropping methods. Additionally, the Urban Ecoriparian Program has increased the responsiveness of the Cawang community to flood disasters. The transformation occurring at the individual level then supports collective transformation, where, on a broader scale, the Cawang community becomes more aware of determining disaster preparedness schedules, communal work, and various other responsibilities.

Furthermore, the individual and collective transformations have also driven political transformation, where the community, having networked and collaborated with various stakeholders at the village level, successfully pushed for flood management policies. In this political transformation process, an achievement that has not been highlighted in the Urban Ecoriparian Program emerges, namely that the program has also contributed to political education for the Cawang community involved. The Cawang community not only has a political stance of staying in the Cawang riparian area despite frequent floods but now, through active and intensive participation in the program, the Cawang community has engaged in grassroots democratic political actions. This is realized through the community's efforts, in collaboration with corporate CSR, in pushing for the establishment of flood management policies that have now been enacted by the Head of the Cawang Subdistrict.

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