

Empowering Vulnerable Communities through Urban Riparian Revitalization: Insights from the Kampung BIRU Program, Jakarta

Dyta Mardyani¹, Ilham Sidiq²

^{1,2}(Pertamina Patra Niaga AFT Halim Perdanakusuma, Indonesia)

ABSTRACT: The Kampung BIRU (Integrated Urban Riparian Cultivation) program is a Corporate Social Responsibility (CSR) initiative by PT Pertamina Patra Niaga AFT Halim Perdanakusuma, implemented in Cawang Village, East Jakarta, since 2024. This program was designed to address the complex urban challenges, particularly the social, economic, and environmental vulnerabilities experienced by communities living along the Ciliwung River. This study aims to describe the impacts of Kampung BIRU on three main dimensions: social, economic, and environmental. Using a descriptive qualitative approach, data were collected through observation, in-depth interviews, and document analysis, and then thematically analyzed. The results indicate that Kampung BIRU has produced significant positive impacts. Socially, the program increases community participation, strengthens social cohesion, and empowers vulnerable groups through collective activities. Economically, it creates new livelihood opportunities through urban farming and circular waste management, contributing to food security and household income. Environmentally, Kampung BIRU transforms riverbank areas into productive green spaces, reduces waste volume, improves riparian ecosystem quality, and enhances flood preparedness among residents. Overall, Kampung BIRU represents an innovative CSR model that integrates social, economic, and environmental dimensions in a sustainable manner. The program also contributes directly to the achievement of Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 13 (Climate Action).

Keywords: Kampung BIRU, urban riparian, CSR, community empowerment, Ciliwung River

1. INTRODUCTION

The development of urban areas in Indonesia presents a paradox between economic progress and environmental sustainability. Major cities, including Jakarta, face serious challenges such as ecosystem degradation, poverty, and social vulnerability resulting from uncontrolled urbanization. One of the primary issues is settlements along riverbanks. Data from the Ministry of Public Works and Housing (PUPR, 2023) indicate that over 30% of riverbank areas in DKI Jakarta are occupied by dense and substandard housing. This situation results in high flood risks, declining environmental quality, and increased socioeconomic vulnerability of residents.

Moreover, flooding has become an annual phenomenon in Jakarta, particularly along the Ciliwung River. The National Disaster Management Agency (BNPB) reported more than 220 flood events in the Greater Jakarta area throughout 2022, most of which were triggered by poor water management, land-use changes, and reduced soil infiltration capacity due to massive development (BNPB, 2023). These conditions are further exacerbated by river pollution, largely caused by domestic household waste. Data from the Jakarta Environmental Agency (DLH DKI, 2023) show that the Ciliwung River receives approximately 12,000 tons of organic and inorganic waste annually, with 70% originating from household sources.

Rapid urbanization has also led to population growth and increased land demand. Statistics Indonesia (BPS, 2024) recorded that the population of DKI Jakarta exceeds 11.2 million, with an average density of 15,978 inhabitants per km². Population growth correlates with land-use conversion, including the transformation of green open spaces into residential and commercial areas. Green open spaces play a critical role in maintaining urban ecosystem support, controlling floods, and providing social spaces for residents. As these spaces decrease, environmental carrying capacity declines, and ecological disaster risks increase.

These conditions demonstrate that urban environmental issues cannot be separated from the socioeconomic dimensions of the affected communities. Poverty, limited access to basic services, and weak adaptive capacity exacerbate the impacts of disasters and environmental degradation. In East Jakarta, for example, more than 4.09% of the population still lives in poverty (BPS, 2024), making them the most vulnerable to flooding, pollution, and environmental damage.

To address these complex challenges, the government has implemented various mitigation and adaptation measures. A key policy is the Normalization and Naturalization of the Ciliwung River program, which aims to reduce flood risk through river widening, relocation of riverbank residents, and riparian ecosystem rehabilitation. By 2022, the Ministry of Public Works and Housing, in coordination with the DKI Jakarta Provincial Government, had normalized over 16 km of the Ciliwung River out of a total target of 33 km (Kementerian PUPR, 2022). However, the program faces social challenges, including resistance from residents unwilling to be relocated, limiting its effectiveness.

Additionally, the government promotes waste management through the Jakarta Sadar Sampah program, targeting a 30% reduction and 70% handling of waste by 2025, as mandated in Presidential Regulation No. 97 of 2017. The Jakarta Provincial Government reports that the capital produces approximately 7,500 tons of waste daily, with 60% generated by households (DLH DKI, 2023). These efforts are complemented by the construction of TPS3R (Reduce, Reuse, Recycle Waste Processing Sites) at various locations, although coverage remains uneven.

In terms of social empowerment, the government has also implemented the Climate Village Program (ProKlim), managed by the Ministry of Environment and Forestry. This program facilitates community actions for climate change adaptation and mitigation through activities such as greening initiatives, waste banks, and renewable energy projects. By 2023, more than 5,000 ProKlim locations were established across Indonesia, including several in East Jakarta (KLHK, 2023). Nevertheless, limitations in resources and institutional capacity mean the program requires support from other sectors, including the private sector.

The private sector also plays a critical role in addressing urban environmental issues through Corporate Social Responsibility (CSR). CSR is not merely philanthropic activity but a corporate strategy to create shared value between business interests and community needs (Porter & Kramer, 2011). In Indonesia, CSR is regulated under Law No. 40 of 2007 on Limited Liability Companies, requiring companies—especially those operating in natural resource sectors—to implement social and environmental responsibilities.

Conceptually, CSR holds great potential in addressing environmental problems because it can integrate social, economic, and ecological aspects into a single, sustainable program. Wibisono (2013) emphasizes that CSR in Indonesia should focus on community empowerment and social transformation rather than mere donations. This approach is critical because successful environmental management heavily depends on active community participation, which is often more effectively mobilized through community-based CSR programs.

One company that demonstrates concern for urban environmental issues is PT Pertamina Patra Niaga AFT Halim Perdanakusuma. Through the CSR program titled Kampung BIRU (Integrated Urban Riparian Cultivation), the company aims to empower vulnerable communities along the Ciliwung River in Cawang Village, East Jakarta. Launched in 2024 the program adopts a riparian approach, integrating ecological, economic, and socio-cultural aspects in riverbank areas.

Cawang Village was selected as the program site due to its complex characteristics: high population density, annual flood vulnerability, limited green open spaces, and significant household waste discharge into the Ciliwung River. Data from BPS East Jakarta (2023) indicate that Cawang is home to more than 43,000 residents,

with a density of 23,000 inhabitants per km², making the community highly vulnerable to ecological disasters and economically constrained.

Kampung BIRU addresses these challenges through three main pillars: (1) riparian urban farming, cultivating vegetables and productive plants along the riverbanks; (2) organic and inorganic waste management through waste banks, composting, eco-enzymes, and recycled products; and (3) disaster mitigation via community-based flood response groups. This approach not only reorganizes the riverbank areas but also creates productive spaces that enhance food security, strengthen social cohesion, and open new economic opportunities.

Kampung BIRU can be categorized as a social CSR innovation because it integrates ecological, social, and economic objectives within a single action framework. The program demonstrates that CSR is not limited to donations but serves as a sustainable development instrument that delivers tangible community benefits. Previous studies have shown that Kampung BIRU supports the achievement of the Sustainable Development Goals (SDGs), particularly SDG 2 (Zero Hunger), SDG 8 (Decent Work and Economic Growth), and SDG 13 (Climate Action).

The objective of this study is to identify the impacts of Kampung BIRU on three key dimensions: social, economic, and environmental. Accordingly, this research is expected to contribute to the literature on the role of riparian-based CSR in promoting sustainable urban development.

Previous studies highlight the critical role of CSR in addressing social, economic, and environmental issues. Fauzi & Oxtavianus (2014) indicate that community-based empowerment facilitated by CSR can enhance social capital and reduce economic vulnerability. In ecological terms, Afifah et al. (2022) demonstrate that urban farming along riverbanks effectively improves food security while mitigating flood risks. Furthermore, Suryandari et al. (2024) affirm that community adaptation to flooding is influenced by the presence of collective green spaces and mutual cooperation.

More broadly, Porter & Kramer (2011) and Suharto (2017) emphasize that CSR should be viewed as a sustainability strategy capable of creating shared value among companies, communities, and the environment. Therefore, Kampung BIRU can be positioned as a distinctive Indonesian CSR model that is relevant in addressing climate change, urbanization, and urban poverty challenges.

2. RESEARCH AND METODOLOGY

The first This study was conducted with the primary aim of describing and analyzing the impacts of the Kampung BIRU (Integrated Urban Riparian Cultivation) program on three critical aspects of community life in Cawang Village, East Jakarta: social, economic, and environmental dimensions. This objective stems from the background problem, which highlights the vulnerability of communities living along the Ciliwung River to flooding, environmental pollution, and limited economic resources. Accordingly, the study not only focuses on how the program is implemented but also examines the extent to which it produces tangible changes in enhancing community capacity and improving environmental quality.

A descriptive qualitative approach was employed in this research. This approach was selected due to its relevance in exploring the meanings, experiences, and social dynamics within the beneficiary community. Qualitative research emphasizes a holistic understanding of the phenomena under study, enabling researchers to provide an in-depth depiction of how CSR programs are implemented and how their impacts are perceived by the community. Moleong (2019) asserts that descriptive qualitative research allows researchers to understand natural contexts and social interactions, making this approach particularly appropriate for studies related to community empowerment and environmental development.

The study utilized both primary and secondary data. Primary data were obtained through direct interaction with the community in Cawang Village, including in-depth interviews with program beneficiaries, urban farming group managers, waste bank operators, and other relevant stakeholders such as local government officials and representatives of the implementing company. Field observations were also conducted to examine the conditions of the Ciliwung River banks, urban farming activities, and community-led waste management and disaster mitigation efforts. Secondary data were collected from official documents such as Kampung BIRU program reports, government publications, Statistics Indonesia (BPS) data, and relevant academic literature.

Data collection was conducted through three main techniques: observation, in-depth interviews, and documentation studies. Participatory observation allowed researchers to directly witness how the community utilizes riverbank land as both productive and social space. Through observation, researchers recorded physical environmental changes, such as reductions in riverbank waste, the emergence of productive green spaces, and community participation in collective activities. In-depth interviews were employed to explore community perceptions, experiences, and views regarding the benefits they gained from the program, providing rich and detailed information about social and economic changes. Documentation studies complemented these techniques by providing additional data from official reports, policy publications, and previous research related to CSR and riparian area management.

All collected data were analyzed using thematic analysis. The analysis involved data reduction, wherein relevant information was identified and grouped into specific categories or themes, such as social participation, income enhancement, waste management, and disaster mitigation. Categorized data were then presented in descriptive narrative form to illustrate patterns, relationships, and dynamics observed in the field. From these patterns, researchers drew conclusions linking field findings to existing theoretical frameworks and literature. This approach ensures that the research findings not only reflect empirical conditions in Cawang Village but also situate them within a broader academic context regarding the role of CSR in sustainable development.

This approach emphasizes that qualitative research extends beyond data collection, seeking to uncover the meanings behind social interactions and collective changes that emerge. In line with Nasution (2018), thematic analysis helps researchers gain a deeper understanding of how communities build adaptive capacity in response to environmental, economic, and social challenges. Thus, the research methodology employed in this study provides a robust foundation for assessing the effectiveness of the Kampung BIRU program in integrating ecological, economic, and social dimensions in a sustainable manner.

3. RESULTS AND DISCUSSION

Overview of the Kampung BIRU Program (Integrated Urban Riparian Cultivation)

The Kampung BIRU (Integrated Urban Riparian Cultivation) program is a Corporate Social Responsibility (CSR) initiative developed by PT Pertamina Patra Niaga AFT Halim Perdanakusuma. The program has been implemented since 2024 in Cawang Village, Kramat Jati District, East Jakarta, specifically in the riparian zone of the Ciliwung River. This location was chosen due to the high vulnerability of the local community to environmental issues, particularly flooding, river pollution, and densely populated settlements with limited green open spaces. Historically, the Cawang riverbank area has been one of the most flood-prone locations while contributing significantly to Ciliwung River pollution due to household waste disposal.

The establishment of Kampung BIRU was driven by the need to create a community empowerment model that not only focuses on physical environmental improvement but also addresses the social and economic dimensions of residents. The program adopts a riparian approach, integrating ecology, economy, and socio-cultural aspects within the riparian area. Through this approach, Kampung BIRU not only reorganizes the riverbanks to become more environmentally friendly but also creates productive spaces that enhance the quality of life of the local community.

Broadly, Kampung BIRU is built on three main pillars. First is riparian urban farming, which utilizes previously unproductive riverbank land for cultivating vegetables, fruit trees, and long-term crops. This activity provides immediate benefits in terms of food security while also improving ecological support by increasing water absorption capacity and reducing soil erosion risk. Second is community-based waste management, which includes converting organic waste into compost and eco-enzyme, and transforming inorganic waste into ecobricks and recycled products such as bags and household crafts. These activities not only reduce the amount of waste discharged into the river but also create new economic opportunities based on a circular economy. Third is community-based disaster mitigation, through the establishment of local groups trained to be flood-ready, monitor river flow, and implement emergency measures to reduce disaster impacts on residents.

Beyond technical aspects, the program emphasizes active community participation. Residents are involved from the planning stage through implementation and evaluation. This ensures program sustainability and strengthens

social capital through collective action and solidarity. A tangible example is the formation of the “Saung Siaga Air Ciliwung” community group, which serves as a coordination platform for urban farming, waste bank management, and flood preparedness activities.

In the context of sustainable development, Kampung BIRU contributes to several Sustainable Development Goals (SDGs), including SDG 2 (Zero Hunger) through local food security, SDG 8 (Decent Work and Economic Growth) via circular economy activities, and SDG 13 (Climate Action) through flood mitigation and waste management that reduces carbon emissions. Consequently, Kampung BIRU can be considered an innovative CSR initiative based on riparian integration, addressing urban environmental challenges while enhancing the welfare of vulnerable communities along the Ciliwung River.

Figure 1: Utilization of the Ciliwung River Riparian Zone



Impacts of the Kampung BIRU Program on Social, Economic, and Environmental Aspects

Prior to the implementation of Kampung BIRU, the community in Cawang Village, Kramat Jati District, East Jakarta, faced considerable vulnerabilities in social, economic, and environmental terms. Data from Statistics Indonesia (BPS) East Jakarta (2023) indicate that Cawang Village is home to over 43,000 residents, with a population density of approximately 23,000 people/km². This density results in densely populated and semi-permanent settlements along the Ciliwung River banks, with limited green open spaces. Many houses are built close to the river edge without adequate sanitation infrastructure, causing most household waste to be directly dumped into the river. This situation not only exacerbates pollution but also increases the risk of annual flooding during the rainy season.

Social Impact

Socially, the Cawang community faced various limitations. Most residents living along the riverbank belong to lower-middle economic groups, with high vulnerability to disasters and environmental crises. Social capital was previously informal, emerging only during emergency situations, such as community-led flood responses, but lacked structured organization. Consequently, the community's adaptive capacity to disaster risks was relatively low.

The implementation of Kampung BIRU has brought significant social changes, particularly in the flood-prone riverbank areas. Prior to the program, community participation in environmental management was sporadic and reactive. Through Kampung BIRU, organized community groups such as the Saung Siaga Air Ciliwung were established, coordinating urban farming, waste banks, and flood preparedness activities. This development reflects a transition from incidental to institutionalized community participation, strengthening social cohesion, collective ownership, and commitment to environmental protection and community welfare.

Kampung BIRU has also enhanced social capital. Regular activities such as communal planting, collective waste management, and flood preparedness meetings have fostered interaction, collaboration, and wider social networking. This social capital reinforces solidarity, trust among residents, and responsive local leadership. Additionally, the program has increased the capacity of vulnerable groups, including women, the elderly, and low-income residents, enabling them to actively participate in urban farming, waste management, and eco-

friendly product production. This involvement has shifted these groups from passive beneficiaries to active contributors in community development.

Collective ecological awareness has also emerged. Residents now recognize the river as an important ecosystem rather than a dumping site, reflected in reduced littering and increased care for the riverbanks. Overall, the social impacts of Kampung BIRU include increased community participation, formation of organized groups, strengthened social capital, empowerment of vulnerable groups, improved disaster adaptation capacity, and heightened collective ecological consciousness.

Economic Impact

The economic impact of Kampung BIRU is evident among Cawang residents, particularly those living along the Ciliwung River. Prior to the program, local economic activity was largely limited to informal sectors with unstable income. The riverbank land, which held potential for productive use, was neglected or served as waste disposal sites.

After the program's implementation, urban farming transformed the riverbank into productive land for both short-term crops, such as spinach, kangkung, and long beans, and long-term crops, including bananas, papayas, and coconuts. These activities provide healthy food for households and generate new micro-enterprises. Community-based circular economy initiatives have also turned organic and inorganic waste into valuable products, creating additional income streams. Women's involvement in these economic activities further strengthens household economic security and social roles.

Moreover, the program fosters a sustainable economic mindset, encouraging efficient use of local resources and environmentally friendly practices. Although the macroeconomic contribution is modest, Kampung BIRU serves as a mechanism for local economic resilience, offering alternative food sources and economic opportunities through waste utilization.

Environmental Impact

The most striking environmental impacts are observed along the Ciliwung Riverbanks. Previously characterized by poor sanitation, dense settlements, and negligible green space, the area has been transformed into productive green spaces. Urban farming enhances local ecological functions, including increased soil infiltration, reduced runoff, and erosion control. Planting long-term crops provides ecological and economic benefits while acting as natural riverbank stabilizers.

Community-managed waste banks have significantly reduced waste entering the river. Organic waste is processed into compost and eco-enzyme to support urban farming, while inorganic waste is recycled into ecobricks, crafts, and reusable products, establishing a local circular economy. Additionally, community-based flood preparedness groups have strengthened residents' capacity to manage disaster risks, reducing potential losses and providing psychological security.

Collectively, these environmental transformations have improved public health, reduced disease risks, and enhanced access to productive green spaces. The program demonstrates that riparian-based CSR not only restores ecological conditions but also creates resilient community-based environmental management systems capable of addressing urbanization and climate change challenges.

4. CONCLUSION

A The Kampung BIRU program in Kelurahan Cawang has produced significant and mutually reinforcing impacts on social, economic, and environmental aspects. Socially, the program successfully transformed previously sporadic community participation into more organized engagement through community groups such as Saung Siaga Air Ciliwung. This strengthened social cohesion, built new social capital, and empowered vulnerable groups—particularly women, the elderly, and low-income families—to become more confident, capable, and adaptive to urban disaster risks.

Economically, Kampung BIRU created new business opportunities through urban farming and circular economy-based waste management. These activities not only improved household food security and access to healthy food but also increased household income through processed agricultural and recycled products with market

value. The active involvement of women in local economic activities further enhanced their contribution to family income and strengthened their bargaining position within the community.

Environmentally, the Ciliwung River riparian area, previously slum-like and littered, has been transformed into a productive green space with crucial ecological functions, such as enhancing water infiltration, reducing flood risks, and improving riparian ecosystem quality. Collective waste bank initiatives reduced the volume of waste entering the river, while community-based flood preparedness groups strengthened residents' readiness for annual disasters.

Overall, the Kampung BIRU program demonstrates that riparian-based CSR initiatives can serve as a model for sustainable urban development. By integrating social empowerment, local economic improvement, and environmental revitalization, the program not only enhances the quality of life for riverside communities but also makes a tangible contribution to achieving the Sustainable Development Goals (SDGs), particularly in the areas of food security, inclusive economic growth, and climate action.

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INFO

Corresponding Author: **Dyta Mardyani**, Community Development Officer at PT Pertamina Patra Niaga AFT Halim Perdanakusuma, Indonesia.

How to cite/reference this article: **Dyta Mardyani, Ilham Sidiq**, Empowering Vulnerable Communities through Urban Riparian Revitalization: Insights from the Kampung BIRU Program, Jakarta, *Asian. Jour. Social. Scie. Mgmt. Tech.* 2025; 7(5): 179-185.