



Ecofeminism: Women's Resistance to the Development of a Geothermal Power Plant Project in Padarincang, Serang Regency

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Received: 16 September 2024; Revised: 30 October 2024; Accepted: 9 November 2024

Abstract

This article examines the women's resistance movement in Padarincang District, Serang Regency, against the development of a Geothermal Power Plant, analyzed through an ecofeminist perspective. As human dependence on energy grows, there is increasing pressure to find alternative energy sources, such as geothermal energy, to meet daily needs. The proposed Geothermal Power Plant in Padarincang is part of Indonesia's commitment to achieving Net Zero Emissions (NZE). However, local resistance emerged due to concerns over the potential economic and environmental impacts of the project. Using qualitative research methods and a case study approach, this study explores how women in Padarincang District contributed to the ecological movement. The findings reveal that the rejection stemmed from a lack of community engagement and socialization about the development, leading to fears of environmental degradation. Many locals did not understand that geothermal energy could offer new opportunities for renewable energy. The resistance, particularly from women, gave rise to an ecofeminist movement addressing these environmental issues. This research contributes to the literature on the intersection of gender and environmental concerns, particularly by highlighting the role of women in such movements.

Keywords: Women's Resistance, Geothermal Power Plant, Ecofeminism, Renewable Energy, Environmental Impact

How to quote: Sulistiani, S., & Indriyany, I. A. (2024). Ecofeminism: Women's Resistance to the Development of a Geothermal Power Plant Project in Padarincang, Serang Regency. *Government & Resilience*, 2(2), 63-76. <https://doi.org/10.62503/gr.v2i2.19>

Introduction

Energy is a crucial need for humans to carry out life. Humans will try to get it in various ways. Human dependence on unlimited energy use requires finding alternative energy sources, such as geothermal energy (Dhar et al., 2020; Xia et al., 2021). Geothermal energy is a renewable and non-carbon sustainable energy source with several engineering (Zhang et al., 2023) with untapped potential to reduce the threat of climate change (Idroes et al., 2024; Karayel et al., 2022; Soltani et al., 2021) and reduce carbon emissions (Goswami & Rai, 2024; Paulillo et al., 2020; Umar et al., 2024). In addition to geothermal, there are several other renewable energies such as wind, solar (Bozkurt & Genç, 2024), hydroelectric, biomass, tidal (Rahman et al., 2022). Although geothermal is included in renewable energy, there are still limitations in the availability of this energy (Sayed et al., 2021). This energy is, of course, aimed at meeting people's living needs. This phenomenon needs to be strengthened by policies that support environmental sustainability (Idroes et al., 2023) and cross-sectoral cooperation .. However, decisions in development planning should consider environmental preservation, health, and other negative impacts (Adityatama et al., 2019; Gkousis et al., 2022; Mott et al., 2022). The construction of the Geothermal Power Plant in Padarincang, Banten Province, is Indonesia's commitment to achieving Net Zero Emission (NZE) (Jatnika & Amal, 2023)

On the other hand, the development of Padarincang Geothermal Power Plant in Serang Regency has implications for the emergence of many problems. Lack of socialization and information to educate the public about developing power plants using geothermal energy has caused confusion between the government and the community (Jatnika & Amal, 2023; Sharmin et al., 2023). This phenomenon also happened in Padarincang District, which has an impact on various actions taken by the Padarincang community to stop the construction of the Geothermal Power Plant Development Project. Lack of socialization from the government to the community regarding the urgency of the geothermal project has often caused rejection from the community and has hampered the work on the geothermal project (Jatnika & Amal, 2023)

Environmental damage, which was responded to through the women's movement, triggered the presence of ecofeminism. Patriarchal countries often ignore the potential for environmental damage (Brito-Millán et al., 2023). Ecofeminism is a discourse that describes the relationship between women and nature. The relationship between women and nature from an ecofeminist perspective positions women with their various efforts to protect, preserve, and save nature or the environment (Fahimah, 2017). According to research by the United Nations Development Program (UNDP) from 1998, up to 2.7 million people die every year due to environmental pollution caused by industrial pollutants, motor vehicle exhaust gases, and fossil fuels burned at home (Astuti, 2012; Hamstead, 2024). As a result, humans suffer from respiratory problems, heart and lung diseases, and cancer. Approximately 2.2 million people die in rural areas due to indoor air pollution caused by using conventional fuels (Gimeno-Sánchez, 2022). The UNDP study further stated that 2 million children die every year due to contaminated water (Astuti, 2012). The ecofeminist argument that explains a relationship between women and nature can be seen from the feminine nature possessed by women and that nature is in harmony with nature through the concept of "Mother Earth" (Fahimah, 2017). Thus, women will tend to preserve and save nature from ecological damage.

Understanding that environmental concerns cannot be separated from women's concerns because the tendency to value the environment appears not only among non-governmental organizations (NGOs) (Fitri & Akbar, 2017) but also among local governments, central governments, and university academics. However, very few people do it (R.V. et al., 2023). However, according to societal stereotypes, women are often associated with nature. A woman, for example, is compared to land, flowers, night, moon, and rice. Sometimes, these myths have a terrible meaning rather than a

good meaning. This metaphorical language for women can create a perception that demeans women. Women are associated with nature, which is regulated by humans. According to this comparison, nature is a terrestrial object regulated, investigated, and exploited by humans. Due to the similarity of women to their nature, women are "controlled" by other humans (male society). Ecological damage continues to develop and finds its new form. The burden of responsibility for protecting the earth and maintaining the climate crisis should not be placed on women alone, and this is certainly not a solution that we can expect (Fahimah, 2017). The term "eco" from ecology is from the Greek word *oikos*, which means the residence of all women, men, animals, plants, air, earth, air, and sun (Astuti, 2012). Ecology studies the interaction between humans and the environment; it is an interdisciplinary relationship between the natural sciences and the humanities (Astuti, 2012).

Ecofeminism is an idea and social movement connecting environmental issues with women arranged inclusively (Chakrabarty, 2023). In this case, ecofeminism assumes that women are culturally connected to nature. The women's movement is an active women's activity that aims to convey to the general public that women can be better and an essential part of the possibility of political change (Lockley et al., 2019). In agrarian conflicts, the task of women is not only to fight against criminal acts that damage nature but to focus on improvement and change so that they can maintain a coexistent relationship between humans and the universe by emphasizing that the actions of both men and women do not use methods that damage nature, but somewhat consultative and culturally integrative methods (Andini et al., 2023; Lockley et al., 2019). In ecofeminism, the characteristics of the development of Western capitalist industrialism show that it only prioritizes capitalist groups so that it strengthens colonialism and reduces control over environmental damage and the increasingly widespread politicization of natural resources (Bangun, 2020). Economic growth that changed over the colonial process resulted in a decline in the natural resources needed. Unlike previous colonialism, today's national elites are not colonial targets to increase national interests and gross domestic product (GDP), but this exploitation is carried out with various techniques of expulsion and destruction (Mies & Shiva, 1993).

One of the benefits of ecofeminism is that it can explain the origins of global environmental degradation through the subjugation of women. Ecofeminism sees social, cultural, and structural difficulties as extreme domination in the interaction of human groups, in this case, related to gender and the relationship between humans and the natural environment, which causes a lot of misery for humans. Ecofeminism also shows that the energy of feminism is auspicious in preserving the environment and the earth. Ecofeminism can explain why gender equality ultimately helps everyone, not just women. Therefore, this article will identify women's resistance to rejecting geothermal development through an ecofeminist perspective.

Meanwhile, an essential step, in this case, is the relationship between women and nature from an ecofeminist perspective, which positions women with their various efforts in maintaining, preserving, and saving nature or the environment, which is depicted in the movement carried out by women in rejecting geothermal in Padarincang District. The role of women is essential in the environmental movement because several studies show how women are involved in movements such as resilience (Azu, 2024), different perspectives in viewing environmental change (Bell et al., 2020; Scharnigg & Martin, 2024), harmonization of environmental and community balance (Taqiyaah & Hidayat, 2023), and active involvement in the policy-making process (Somoye & Akinwande, 2024; Yunus et al., 2020). This study strengthens the need for the intersection of gender issues with other issues, one of which is environmental issues (Campos & Marín-González, 2020; Lieu et al., 2020).

Research Methods

In this study, the research method used is qualitative research. This method of scientific investigation involves the researcher acting as the main instrument. The researcher used a qualitative method in this study because it only affects one variable. This choice allows researchers to deeply reveal problems and conduct detailed investigations of cases that arise naturally in social life (Creswell & Creswell, 2018). The qualitative approach will enable researchers to explore the background of women's resistance in efforts to carry out geothermal rejection movements in Padarincang District. The research approach used in this qualitative study is a case study approach. To deepen understanding of a phenomenon or problem in a natural context (Creswell & Creswell, 2018)

In addition, this study uses objective and accurate literature. The stages start with searching and selecting relevant literature, identifying important information, and compiling evaluations. The references and data apply to the topics discussed, especially ecofeminism and Geothermal Development in Padarincang district, Serang Regency. Furthermore, the various resistance movements carried out by women in efforts to reject the development of geothermal projects are also explained in detail using an ecofeminist perspective.

Results and Discussion

In this discussion, we will explain women's resistance to rejecting Geothermal Power Plant development project using an ecofeminist perspective. Geothermal energy is an environmentally friendly energy source because it can contribute to development systematically. Looking at the 1945 Law, the state manages its natural resource wealth and utilizes it as much as possible for the welfare of its people. With this, geothermal energy becomes one of the advantages that the state should manage because it can be of interest to the community, fulfill national functions, and improve people's welfare based on using geothermal energy (Sukmawan, 2018).

So far, humans have often carried environmental damage, where many movements voice and oppose actions that damage nature, even though life depends on nature. In this case, people, especially rural women, loudly defend their environment by opposing environmental exploiters to avoid ecological impacts (Brisman & South, 2019). This critical condition is because environmental damage begins with widespread deforestation, river pollution due to illegal waste disposal, and the release of nuclear reactors hidden on the outskirts (Hardiningtyas, 2016). On the other hand, life in polluted villages based on population demographics is dominated by children and women, unlike men who go out of town to earn a living for their families. With this assumption, it is natural that the women's movement to protect the environment will continue to be very real and vital, even when men do not care and do not side with capitalists and industrialists (Arni & Nur, 2021).

Indonesia is located between the eastern Mediterranean volcanic belt and the western Pacific Ring of Fire, making it a country surrounded by active borders. Indonesia's territory is occupied by a volcanic activity known as the "Pacific Ring of Fire." Located in an active volcano area, these facts make Indonesia a potential world leader in geothermal power generation (Sukmawan, 2018). in developing countries for the further development of low-carbon energy systems. Because of the geothermal advantage in the availability of stable electricity at low cost, it is an excellent choice of energy source to replace fossil fuels in supplying base load power (operating continuously except for scheduled blackouts and disruptions) and to complement the electricity supply from other renewable energy sources. Indonesia has the most extensive geothermal resources in the world, with

a potential capacity of 29G. However, less than 5% of the potential has been successfully utilized. Indonesia is the owner. The main obstacles to promoting the use of geothermal resources include limitations due to previous laws on inadequate feed-in tariffs, lack of funds, and significant risks during the exploration stage. Electricity demand continues to increase yearly, with an average annual increase of 7%. Meanwhile, over the past five years, the expansion of electricity facilities and infrastructure, especially the addition of generating capacity, has only increased by an average of 4.4% annually. These electricity shortages exist in various places, especially outside the Java-Madura-Bali energy network.

The problem of the rejection movement in Padarincang, Serang Regency, is based on the national interest economic growth plan by the Central Government, where women carry out rejection actions that become the identification of conflict or problems. In this case, of course, some people are controlled and mobilized to join together in the movement to reject the Geothermal Power Plant Development project in the Praksak Protected Forest Area, Batukuwung Village, Padarincang District, Serang Regency. Furthermore, the Banten Provincial Government, through the decision of the Acting Governor of Banten Al Muktabar, again voiced its policy decision to continue the Geothermal Power Plant Development project in the Rawa Danau Caldera Geothermal Working Area as an acceleration program for the construction of a power plant with 10,000 Megawatts phase II.

Padarincang is included in the Mining Working Area of the Banten Lake Caldera Area, Serang Regency, which has been determined since 2009 based on the determination of the WPK so that it opens up large-scale exploitation permits based on geothermal energy in Banten. In this case, geothermal power plant development project will be established by PT. Sintesa Banten Geothermal is the company that won the open auction in the Caldera Mining Work Area. This project has been discussed to be built in the Padarincang area since 11 years ago, which is based on the WKP stipulation through the Decree of the Minister of Energy and Mineral Resources No. 0026K/30/MEM/2009 on January 15, 2019 concerning the Determination of Geothermal Mining Work Areas in the Banten Lake Caldera Area, Serang Regency and Pandeglang Regency, Banten Province. The community that rejects the development project, especially the ecofeminist movement that opposes the establishment of the Geothermal Power Plant, is strengthened by the reason for the establishment of PT. Sintesa Banten Geothermal (SBG) will affect and threaten the socio-economic sector. However, the rejection is part of a joint struggle to protect human dignity and self-esteem because it is not involved in decision-making. Furthermore, the Geothermal Power Plant Development Project policy in Padarincang ignores the rights it should have, which are related to the community's dignity. One of the livelihoods of the Padarincang community is farming, a cultural identity of the village that must be preserved because the construction of the Geothermal Power Plant Development Project has the potential to damage the cultural buildings of the town of Padarincang. The rejection by the Padarincang community of the Geothermal Power Plant Development Project construction project has a strong foundation as an essential reference:

1. The concerns and threats caused by the Geothermal Power Plant Development Project, which impacts the economic and environmental sectors in the agricultural area, will change.
2. The mothers believe that if the Geothermal Power Plant Development Project is successfully established, there is no guarantee of security for the fate of women in Padarincang in the future.
3. Most of the community, which consists of farmers in the village, will lose their livelihoods because its members are primarily elementary school graduates who have not received formal education.

Therefore, ecofeminism, or the women's movement in this issue, must receive fair treatment and recognition of its existence. In other words, development must also consider and recognize

women's rights, including the right to a clean environment and housing, and gender insensitivity will have a worse impact on women (Arni & Nur, 2021).

On the other hand, agricultural land and protected forest areas are the main factors causing rejection, hindering the mobilization of companies that want to build. However, there are still people, especially rice field owners, who, without thinking twice, are willing to sell their land to this project. The community's desire to sell their land was motivated by rumors in the past and among local village elites that the state would buy the land at a high price. Based on the abovementioned beliefs, the women's movement actively rejected the Geothermal Power Plant Development Project in Padarincang, Serang Regency.

The Emergence of the Ecofeminist Movement Rejecting the Geothermal Power Plant Development Project in Padarincang

The movement to reject the geothermal project began in 2013 when the company formed a team of experts to contact the entire Padarincang community, from clerics to Kiai and students to environmental activists. In this case, it cannot provide residents with confidence in the existence of geothermal energy and its contributions from a social, cultural, economic, demographic, and topographic perspective to participate in various ongoing activities. The strategy of the ecofeminist movement to mobilize individuals to join the resistance movement is to go door to door to people's homes to share ideas and meanings from the situation they are facing.

Furthermore 2016, amidst a wave of opposition from residents, the company allegedly conducted a secret search on Mount Parakasak Padarincang. Therefore, the community opposes the company's operation, which is considered detrimental and disruptive to the ecology of the Padarincang community, whose livelihoods depend on agriculture. The community also put up banners on the streets of their village opposing the Geothermal Power Plant Development Project to warn the Padarincang community about the dangers of geothermal energy. In addition, women raise awareness and empower the community who have followed the movement in their daily activities, such as going to the store. Therefore, this movement carries out awareness and empowerment activities by using their homework daily. Mothers also try to instill awareness in their children about the importance of fighting for the environment and its habitat so that it is hoped that their children can continue their struggle well in the future. Then, in 2017, there was increasingly massive resistance carried out by the ecofeminist movement with a demonstration in front of the Padarincang sub-district office that demanded the termination of the geothermal project activities by threatening to boycott and block access to the project area. The community is worried that the success of the Geothermal Power Plant Development Project will cause enormous losses, namely water drought, landslides, and earthquakes, as well as the closure of the economic sector of the community that works as farmers. In addition, many other emissions from coal-fired power plants affect humans' air quality. This phenomenon can affect the quality of health and increase the number of people suffering from respiratory diseases. It is also reflected in statements by experts such as Fred Magdoff and John Bellamy Foster that coal impacts global warming .

Without a bright spot, the rejection was repeated in 2018; the local community opposed the geothermal project, from putting up banners of rejection to holding on. On the other hand, the company also increased contact with community groups. However, the local community still refused to build the project. Finally, the community actively took part in a demonstration at the Banten Provincial Government Governor's Office demanding the termination of the geothermal project because the existence of the Geothermal Power Plant Development Project itself has advantages and disadvantages in the community, which contributes to geothermal degradation. Therefore, the peak of the disagreement occurred in 2019, when the rebellion of the rebellious residents continued with

the freedom of expression movement, and Istigosah blocked the company's heavy equipment. Some Padarincang residents even went from Serang to the ESDM Ministry Office in Jakarta (See Figure 1).

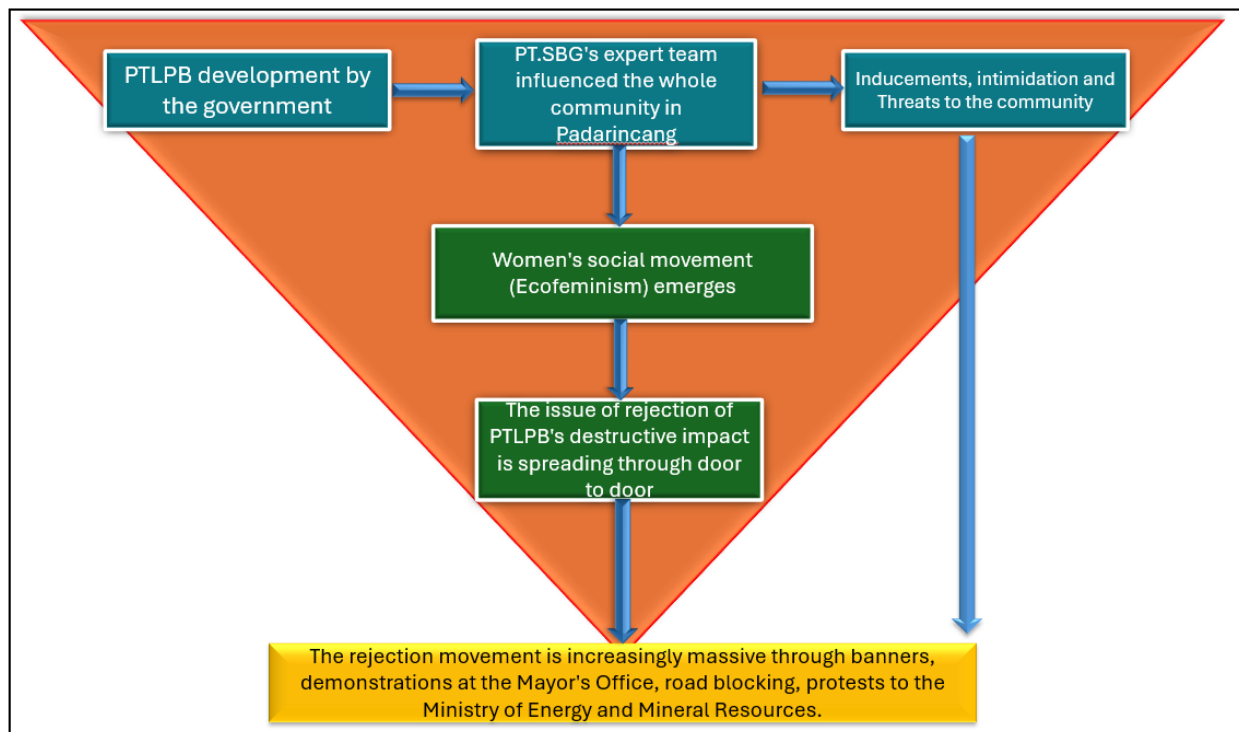


Figure 1. The emerging of ecofeminism movement in Padarincang

Portrait of Women's Resistance to Reject Geothermal Development in Padarincang

The movement carried out by women in Padarincang was allegedly triggered by increasing public concerns that this project could bring disaster and risk (Fitri & Akbar, 2017). The energy project uses high-potential geothermal energy as a form of ecological destruction in Padarincang, one of Indonesia's many potential geothermal areas. PT. Sintesha Banten Geothermal (SBG), the company that won the public tender in 2010, has repeatedly failed in its evil plan to get residents to agree to the project. In early 2020, Padarincang residents of the People's Struggle Association (SAPAR) carried out a heavy equipment ambush to stop this mining project. Thousands of people came and blocked the road. All levels of society participated in the rejection, including women, who were not afraid to support the rejection.

There, representatives of residents, including Umi Eha, a pioneer of the Padarincang women's movement, participated in the socialization held by PT. SBG is working on this significant project; however, several residents have considered attending the meeting. Unlike Umi Eha, she was confident that the residents would win, and she encouraged and advised other residents not to give up on this struggle. The company's desire to invite experts to meetings to persuade and convince residents did the opposite and increased the residents' confidence in rejecting geothermal energy. Umi Eha, who was very enthusiastic, could imagine what happened. They tried to shake the residents' determination with tricks and inappropriate reasons. One of them was to help Padarincang residents get jobs through this project. Umi Eha and the residents did not understand and thought that instead of permanent employment, they could not be paid for the possibility of other environmental damage.

Realizing that women have a significant influence, Umi Eha tried to raise awareness about women in conferences and presentations she led. Umi Eha did not want to act without a firm basis and reason to reject, but first, she researched and found out from various sources what the impact of geothermal power plant development would be. In 2010, the women's movement began. Umi Eha, together with the mothers, opposed the establishment of PT. Tirta Investama is a subsidiary of Danone that controls clean water. This phenomenon is detrimental to women because women are the first to feel the negative impacts of the factory since the water crisis, cooking, and other needs. There is no direct word for battle. Umi Eha's efforts to raise awareness of the dangers of geothermal projects for mothers are complex. It takes a long time for women to endure all kinds of threats and intimidation from outsiders (Arni & Nur, 2021; Fahimah, 2017; Wulan, 2007).

To be ready for war, use the "door to door" system or Islamic teachings on war and jihad in regular meetings and statements. There are four types of struggle: the struggle for religion, homeland, rights, and family. So, women are enthusiastic and brave enough to express their disagreements, which leads to the growth of community movements and increases women's awareness (Nagari, 2020). When damage occurs, women will feel the effects. Umi Eha highlighted the environmental damage caused by this mining project with a simple statement. It was emphasized that if this project is successful, it will undoubtedly impact the social and natural disasters we will face later. Padarincang residents have continued to fight for the environment for more than ten years. Umi Eha hopes that this fight will continue and resonate. In the future, this environment will belong to our children, grandchildren, and the younger generation.

Women are essential in managing land and natural resources, from seeding to planting, maintenance, and harvesting. Unfortunately, women's productive role has not been fully recognized and considered. The patriarchal legal and cultural systems in Indonesia cause women to continue to experience discrimination and marginalization in land ownership and management. Gender inequality is not just a problem for women. Gender equality means no one party dominates because gender power can be exercised by both men and women (Wiyatmi et al., 2019). In environmental conflicts, women fight against nature destroyers to become change agents and promote harmonious relationships between nature and humans. To encourage harmonious relationships between humans and nature, women do not use destructive but somewhat consultative and culturally integrative methods (Sari et al., 2019).

In addition, constructing the Geothermal Power Plant Development Project in Padarincang also has implications for social and environmental problems. The impacts that occur due to the construction The use of the Geothermal Power Plant Development Project in Padarincang is caused by land conversion that changes the geographic and topological conditions of the community (Brisman & South, 2019; Jatnika & Amal, 2023; Sumotarto et al., 2019)) including:

1. Ecological damage due to geothermal development exploitation activities that damage protected forests resulting in water consumption and climate compensation and the risk of severe damage to drilling activities that break the geothermal core.
2. On the other hand, the threat from the social side with the existence of the Geothermal Power Plant Development Project has caused horizontal conflicts in society, which have only recently shown this tension.
3. Threats from the cultural side, such as local wisdom anchored in the community as a model of cooperation, politeness, and wisdom in the religious community, have become messy.
4. Threats from the religious side, where the Padarincang area is a religious area with many Islamic boarding schools and religious solid teachings so that the process of cultural

acculturation in the industrial world will affect the religious values of the Padarincang community.

5. Threats from the environmental side, it is feared that the environment affected by the Geothermal Power Plant development project will cause severe environmental damage and affect the community's main economic activities from agriculture.

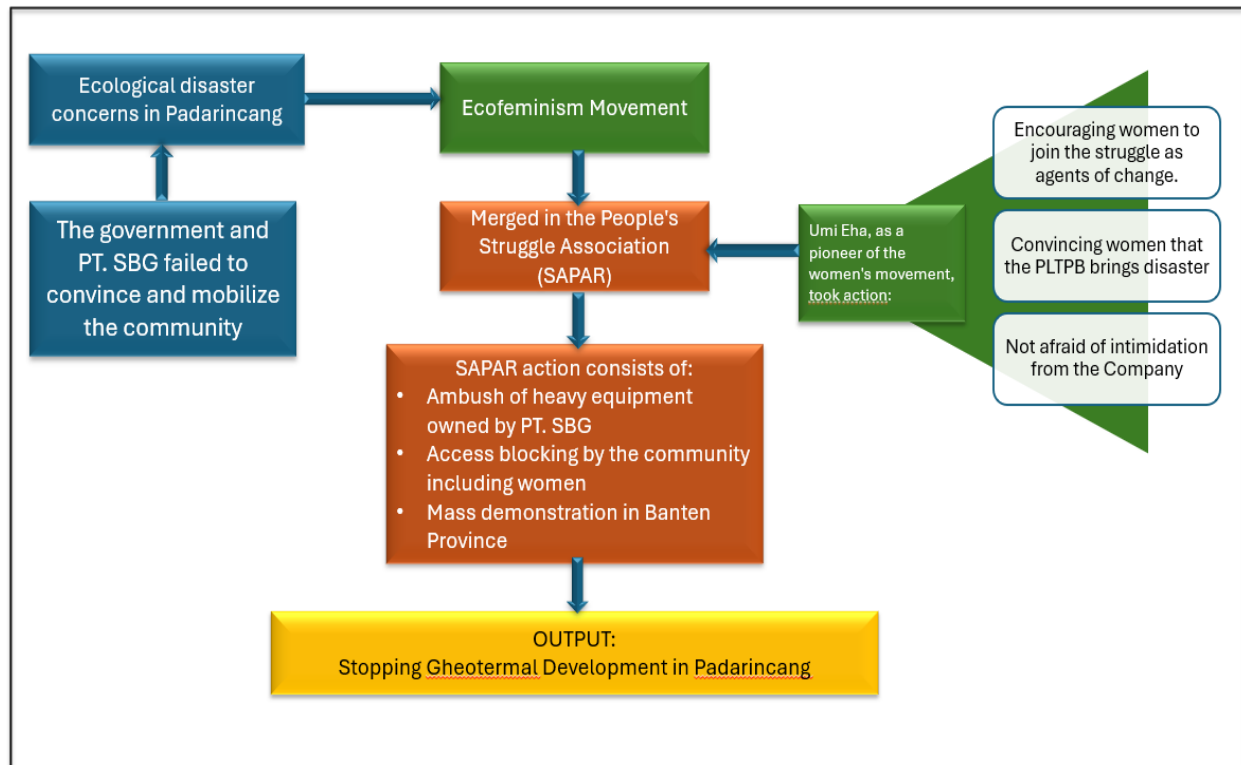


Figure 2. The resistance from women of Geothermal Plant in Padarincang

The findings indicate that the community's opposition is driven by fears of environmental damage, loss of agricultural livelihoods, and the erosion of local cultural and religious values. The women's movement against the geothermal project exemplifies a broader ecofeminist struggle, emphasizing the interconnectedness of gender, environment, and social justice. The research highlights the lack of adequate socialization and engagement from project developers, which has fueled distrust and resistance among the community members.

Conclusion

This research investigates the resistance of women in Padarincang, Serang Regency, against the proposed Geothermal Power Plant Development Project, framed within an ecofeminist perspective. The study employs qualitative methods to explore the socio-cultural, environmental, and economic implications of the project, revealing the deep-rooted concerns of the local community regarding ecological degradation and cultural disruption.

Important Findings:

1. The resistance is not merely a reaction to environmental threats but is also deeply intertwined with cultural and religious values that are at risk due to industrial encroachment.
2. Women play a pivotal role in mobilizing community action, showcasing their agency in environmental advocacy and decision-making processes.
3. The potential negative impacts of the geothermal project on agriculture and local ecosystems are significant concerns that need to be addressed.

Practical and Policy Suggestions:

1. **Enhanced Community Engagement:** It is crucial for project developers and government agencies to engage in meaningful dialogue with the local community, ensuring that their voices and concerns are heard and addressed.
2. **Environmental Impact Assessments:** Comprehensive environmental assessments should be conducted prior to project initiation, with transparent reporting to the community to build trust and accountability.
3. **Support for Local Livelihoods:** Policies should be developed to support alternative livelihoods for those affected by the geothermal project, ensuring that economic benefits are equitably distributed.

Recommendations:

1. Future research should explore the long-term impacts of geothermal energy projects on local communities, particularly focusing on gender dynamics and environmental sustainability.
2. Policymakers should consider integrating ecofeminist principles into energy planning and development, recognizing the importance of local knowledge and cultural values in sustainable practices.
3. Collaboration between environmental organizations and local communities should be fostered to strengthen advocacy efforts and promote ecofeminist movements.

Various environmental issues today are often campaigned to increase public awareness, likewise with the ecofeminism movement that is shaking up environmental care practices by women. This movement began with several concerns about the environment and society. One of the issues widely discussed regarding ecological protection efforts is the Geothermal Power Plant Development Project construction project in the protected forest area of Mount Praksak, Padarincang, Serang Regency.

The community has rejected the construction of this Geothermal Power Plant Development Project because there has yet to be socialization regarding the construction. In addition, the construction of this Geothermal Power Plant Development Project has had various negative impacts on the community, namely, ecological (environmental) damage. This rejection then gave birth to a movement carried out by women on environmental issues (ecofeminism), which is worried about the potential disaster from the construction of the Geothermal Power Plant Development Project Padarincang, Serang Regency.

Research Limitations: This study is limited by its qualitative approach, which may not capture the full spectrum of community perspectives. Additionally, the focus on a single case study in Padarincang may limit the generalizability of the findings to other regions. Future research could

benefit from a comparative analysis across different communities facing similar challenges to provide a broader understanding of the issues at hand.

In conclusion, the resistance of women in Padarincang against the geothermal power plant project underscores the critical need for inclusive and participatory approaches in energy development, recognizing the vital role of local communities in shaping sustainable futures.

Competing Interest Statement

The authors state that they have no competing financial interests or personal relationships that could affect the work reported in this paper.

Acknowledgment

We would like to thank the Government & Review Editorial and Review Team. Resilience Journal that has supported our manuscript until it was published.

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