

## Developing a Model of Women's Empowerment for Environmental Adaptation and Disaster Mitigation in Malang Regency

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### Abstract

The damaged condition of the coastal forests in Malang Regency prompted the community to carry out conservation activities called the Green Belt Movement. This movement was initiated by the people around Sendang Biru, who are members of the Bhakti Alam Sendang Biru (BASB). The conservation movement has supported global efforts in climate change adaptation and disaster mitigation. Unfortunately, the movement is still lack of women involvement, but it is still dominated by men. This paper aims to reformulate the BASB green belt movement model by integrating gender mainstreaming in order to empowering local women in environmental adaptation and mitigation through conservation. The method used in this study is a qualitative approach with data collection techniques through interview, observation and literature study. As a form of empowering women through the Green Belt Movement by involving local women as the main actors, it is necessary to carry out intensive and massive counseling to construct awareness, provide positive affirmations and women's confidence. Furthermore, women communities' institutionalization, increasing human resources through technical education and training programs and having economic benefits without ignoring ecological values are also considered to be necessary. Additionally, it is essential to encourage participation among stakeholders, especially government, to ensure the movement sustainability.

### Abstrak

Kondisi hutan pesisir di Malang Selatan yang rusak mendorong masyarakat untuk melakukan konservasi yang disebut Gerakan Sabuk Hijau. Gerakan ini diinisiasi oleh masyarakat sekitar Sendang Biru, yang tergabung dalam Bhakti Alam Sendang Biru (BASB). Gerakan sabuk hijau BASB telah mendukung upaya global dalam adaptasi perubahan iklim dan mitigasi bencana. Sayangnya, keterlibatan perempuan lokal dalam upaya konservasi masih kurang. Gerakan restorasi hutan masih didominasi oleh laki-laki. Tulisan ini bertujuan mereformasi model gerakan sabuk hijau BASB dengan mengintegrasikan pengarusutamaan gender dan pemberdayaan perempuan lokal dalam aksi adaptasi lingkungan dan mitigasi bencana melalui konservasi. Metode yang digunakan melalui pendekatan kualitatif dengan teknik pengumpulan data melalui wawancara, observasi dan studi pustaka. Sebagai wujud pemberdayaan perempuan melalui gerakan sabuk hijau perlu dilakukan sosialisasi secara intensif dan masif untuk membangun kesadaran perempuan. Selain itu penting juga dilakukan pelemagaan sosial serta penguatan jaringan kerja sama.

### Keywords

*Green Belt Movement, Disaster Mitigations, Climate Change Adaptation, Women Empowerment*

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## Introduction

Sendang Biru in the Malang Regency is one of the areas that suffered severe damage. The degradation of coastal forests has caused by natural disasters such as floods, erosion, landslides, droughts and reduced water discharge. This has a huge impact on the socio-economic life of the community. Environmental damage due to changes in the function of coastal forests encourages local community groups to conduct an independent conservation movement called Celungup Mangrove Conservation (CMC). This local movement was initiated by Saptoyo who also organized Bhakti Alam Sendang Biru (BASB) foundation in 2004 and called . Their activity in planting trees along the coast of Sendang Biru called the Green Belt Movement (GBM). Reduced water discharge drives Saptoyo to invite local communities who care and preserve their forests.

GBM in Malang Regency is interesting to discuss because its name is similar with the environmental movement in Kenya pioneered by Wangari Mathai. However, GBM in Kenya is an environmental movement stirred by mostly women. Historically, the original movement has been driven by concerns about bad condition of Kenyan women due to illegal logging which results the degradation of Kenya's forest. The difference between two movements lies in the actors, namely women. Referring to Ecofeminism expert, Vandana Shiva, nature has a feminine side. Women and nature have a special relationship. The destruction of nature has a direct connection to the oppression of women (Jackson, 1993). Nature needs a woman's 'touch' because, women's senses consists of the softness, the caring instinct, and protection are naturally needed by nature. Men's treatment on women correlate to how men handle the nature. Based on above explanation, this paper focuses on the role of women in coastal forest conservation that have been done by the local community group, Bhakti Alam Sendang Biru (BASB). The question of this study is what is the model of women's empowerment through the Green Belt Movement for climate change adaptation and disaster mitigation in Sendang Biru, Malang Regency?

This paper aims to reformulate the model of the BASB Green Belt Movement by integrating gender mainstreaming and empowering local women communities in environmental adaptation and disaster mitigation through the coastal forest conservation movement of Sendang Biru, Malang Regency. The assumption of this paper is that local women's involvement in conservation is in a lowest level. Forest restoration by the locals is still dominated by men. So, the mitigation and movement are still lack of women's awareness. In fact, the main idea of the GBM in Kenya is gender mainstreaming, which are initiated and driven by women. The involvement of women in nature is important, because women have a close connection with nature. The nature of women determines how nature is treated. In addition, the impact of disasters are most felt by women as one of the vulnerable groups and also who responsible for their family. It is necessary to make the equality between men and women in disaster mitigation and climate change adaptation.

Research related to the green belt movement in Kenya presented by M.L. Udvardy (1998) explains the spread of women's groups in Kenya which have an important role in development forums. The condition of the spread of women's groups is caused by conflicting gender relations or limitations in meeting the needs of women in rural areas. Similarly, Awori J. Hayanga (2007) analyzed the struggles of African women by highlighting gender inequalities in

education, economics, and leadership. In 2004, the first African woman to receive the Nobel Peace Prize for her contribution to reforestation. Additionally, Bethany Boyer-Rechlin (2010) evaluated programs involving women in community-based forestry projects focusing on recommendations regarding cultural factors, participation, resource ownership, and transfer of skills and knowledge.

In addition, *Women, Nature, Resistance to the Power of Patriarchy and World Development* (Maulana, 2013) in depth about Wangari Maathai and the Green Belt Movement to address the environmental crisis and discrimination of women in Kenya. Her research analyzes related to ecofeminism with the perspective of women and nature that are the object of Maathai's struggle. The same thing was also emphasized by (Amir et al, 2013) who conducted research in Payum Beach, Merauke Regency, that the existence of coastal women in preserving mangrove forests on the coast of Payum Beach coincided in Merauke Regency. The involvement of women in this matter shows that the existence of women continues in terms of planning, implementing and evaluating mangrove forest rehabilitation activities.

This paper is divided into three parts; first of all, the conceptualization of women's relation with environmental movement in ecofeminism and Green Belt Movement perspectives. Furthermore, it will explain about the concept of integrating climate change adaptation with disaster risk reduction. The relationship between environmental issues and disasters will explain used that concept. Second, this paper describes the destruction of the coastal forests of Sendang Biru and the green belt movement in a BASB perspective. Last, it describes Green Belt Movement through the women's empowerment conceptual framework that can be developed in coastal forest conservation in Sendang Biru.

## **Theoretical Framework**

### **Women's and Environmental Relations in Ecofeminism and *Green Belt Movement* Perspectives**

A subset of feminist theory called ecofeminism discusses how women and nature interact. Francois D'Eaubonne, who inspired women to participate in the ecological movement and Save The Planet, established ecofeminism in 1970 (Merchant, 2005). Dissatisfaction with the increasingly concerning global environmental conditions raised the idea of ecofeminism. According to ecofeminism, pressures placed on women are thought to be intimately tied to the exploitation of nature. (Jackson, 1993). The powerful patriarchal system, where men have grown to be so dominating in social life, is intimately tied to the issue of environmental degradation.

This theory contends that the capitalist system, which has contaminated human civilization and led to the development of exploitative and domineering ambitions, is the source of the patriarchal system. Nature and women are seen as sources of power in patriarchal culture. Humans who are patriarchal often exhibit dominance and exploitation. Patriarchy has been influenced by capitalism to utilize their status to accumulate wealth. As a result, patriarchy rules over nature and women. It manipulates nature and use it for their own financial gain. (Merchant, 2005)

The pinpoint offered by ecofeminism is to deconstruct the patriarchal system, because this mentality causes less treatment of women and causes damage to nature. Because of it,

respect to women determines how human respect for their environment. The involvement of women in nature conservation efforts is essential. Women are considered to play a strategic role in preventing and creating a comfortable and magnificent environment.

One of the environmental movements with an ecofeminist outlook is the Kenya's Green Belt Movement that was established in 1977. This movement arose out of anxiety and concern over the condition of Kenyan society and environment due to environmental degradation caused by illegal logging and deforestation, especially the huge effects felt by the majority of women in Kenya. The difficulty obtaining daily basic needs such as clean water, food, income, wood mobilized Kenyan women through tree-planting campaigns, community building and capacity building (Maathai, 2012).

Maathai's patriarchal husband struggled to understand how her circumstances differed from those of other Kenyan women. (Maathai, 2011) He said that Maathai was "too educated, too strong, too successful, too stubborn and too difficult to control" to get him divorced. Maathai contends that Kenya's patriarchal culture hurts women based on her own experience. An African woman is seen to be good if she is reliant, obedient, and not better than her husband, which places Kenyan women in a subordinate position and prevents them from thriving (Muthuki, 2006). Then, Maathai urged Kenyan women to stand up and have the courage to oppose actions that could endanger people's lives, particularly for those women, such as clearing forests, violating human rights through tribal conflicts, and corruption.

Maathai's struggle is comparable to Vandana Shiva's beliefs, which were influenced by the Chipko movement, an Indian women's tree-hugging movement to stop destruction. Marxist ideas have influenced Shiva and Maathai's ecofeminism, which departs from the critique of capitalists that the west introduced through colonialism as the cause of the dependence issue and human rights abuses experienced by women and nature.

### **Integration of Climate Change Adaptation in Disaster Risk Reduction (CCA-DRR)**

Disaster Risk Reduction (DRR) is the idea that disaster risks can be reduced by methodically analyzing and managing the factors that contribute to disasters, such as by limiting exposure to hazard threats, lessening the vulnerability of people and property, managing land and the environment wisely, and enhancing preparedness for unfavorable events. Climate Change Adaptation (CCA) is the modification of natural or human systems to address actual climate change by lowering risks or seizing advantageous opportunities. The benefits that climate change may bring about are likewise managed by CCA (USAID, 2017).

According to the definition, CCA-DRR integration is the application of disaster management principles, procedures, and steps in an effort to adapt to climate change. In order to lessen the impact of climate change and benefit from it, CCA is paired with initiatives to reduce catastrophe risk, climate research, and medium- and long-term adaptation measurement. The objectives of sustainable development and poverty reduction are formulated by CCA-DRR; these objectives include controlling risks and emancipating from various hazards through capacity building and managing or reducing vulnerabilities.

The rationale for integrating these two ideas is the claim that hydrometeorological conditions are the primary cause of the majority of disasters. According to USAID (2011),

hydrometeorological disasters are catastrophes brought on by disasters including floods, landslides, and tornadoes.

A number of international conferences on climate change and disasters also support CCA-DRR integration. In 2005, during the World Conference on Disaster Reduction in Japan, it was decided to integrate DRR with adaptation methods to lower the risk of disasters brought by climate change. Then, there is the UNFCCC's international mandate, which stresses the need for developing nations situated in disaster-prone areas to receive special attention. At the 19th COP in Warsaw in 2013, the United Nations International Strategy for Disaster Reduction (UNISDR) delivered specific messages and suggestions regarding the integration of DRR into CCA, which followed the Bali Action Plan from the 13th Conference of the Parties (COP) in Bali in 2007 (USAID, 2011).

Because some adaptation strategies can impact on greenhouse gas emissions while mitigation measures can be designed to lower catastrophe risks, it is necessary to implement both adaptation and mitigation measures at the same time while mitigation measures can be planned to help reduce disaster risks.

## Methods

The researcher of this study used a qualitative approach with data collection using observations, interviews, and documentation studies. This article was written as an addition to a model for empowering local women in disaster mitigation as a form of gender mainstreaming of responsibility to save nature and maintaining the sustainability of coastal ecosystems in the Sendang Biru.

## Result and Discussion

### Description of Damaged Coastal Forest in Sendang Biru, Malang Regency

Malang Regency has a coastal forest area characterized by mangrove forests spread across six sub-districts, they are Ampelgading, Tirtoyudo, Sumbermanjing Wetan, Gedangan, Bantur, and Donomulyo. The mangrove forest suffers severe damage every year. Until 2013, 195.000 m<sup>2</sup> of a total area of 344.000 m<sup>2</sup> of mangrove forests on the south coast of Malang Regency were damaged. This means that coastal forest degradation reaches more than 50%. The worst damage to coastal forests occurred in several areas, such as Sendang Biru Beach, Tambakrejo, Sumbermanjing Wetan Sub-District.

Regarding the area of coastal forest and the area of forest damage in the Sendang Biru area, there is no data in an exact amount, because based on local environmental activists, there has never been a clear measurement of the exact amount of damage to mangrove forests. Environmental activists can only estimate, in 1997, the mangrove area was estimated to be 120.000 m<sup>2</sup> and until 2017, it has continued to decrease, leaving only around 81.000 m<sup>2</sup> (Saptoyo, 2017). Different data is shown by the Maritime Affairs and Fisheries Department where in 2013 as many as 165.000 m<sup>2</sup> or 47.96 percent of mangroves were heavily damaged and 29.400 m<sup>2</sup> or 8.54 percent were slightly damaged (Supriyanto, 2013).

This damage occurred since the economic crisis in 1997 and continued after the reformation where there was deforestation in coastal areas on a large scale which caused damage to protected forests (bhaktialam, n.d.). As we can see from this historical event, forest clearing was made by migrant communities to Sendang Biru after the monetary crisis. They clear land for

plantations, agriculture, ponds and settlements. Previously, local natives used the forest for firewood. Feeling jealous of the activities of the newcomers, local residents were provoked to do the same. Saptoyo said, the Sendang Biru mangrove wood is wood with very good quality charcoal. Besides that, mangroves are the best furniture material in Malang Regency (Saptoyo, 2017). Further, this accelerates to the rate of forest loss on the coast of Sendang Biru.

In addition, the destruction of coastal forests occurs due to the lack of awareness of the community and state apparatus in utilizing the forest. Many people catch fish using potassium and explosives. Then, the most destructive is the downgrading of protection forest land to production forest by State Forestry Public Company (Perhutani). As a result, 10% of the forest cannot be restored because it has become agricultural land. The reduced area of coastal forests is followed by the loss of natural habitats such as East Javan langurs, lemurs, porcupines, mangrove tigers or what local people call klorow tigers, Javanese eagles, starlings, and other animals have become extinct.

From the data collection, the decline in the function of the Sendang Biru forest is caused by several things, first, the impact of the 1997 monetary crisis and reforms. The 1997 monetary crisis affected all aspects of people's lives, thus encouraging the community to illegally clear agricultural land and plantations in fulfilling their needs. In line with that, the end of the New Order regime also marked the weakness of the government's function of control over forests. After the reform, many Indonesian forests including the forests of Perhutani were looted on a large scale by the community. According to Saptoyo, when President Abdurahman Wahid was president, he once said that forests belonged to the people. However, this statement is misinterpreted. The community thinks that the government gives permission to use forests as economic land (Saptoyo, 2017).

Second, bureaucratic cooperativeism in forest management terms is called rent-seeking bureaucracy. Changes in forest management authority granted by the Government to Perhutani through Government Regulation No. 36 of 1986 concerning the State Public Forestry Company which was then refined in 1999 through the establishment of Government Regulation No. 53 of 1999 concerning the Public State Forestry Company (Perhutani). In 2001 the Perum Perhutani form of business was determined by the government as a BUMN in the form of a Limited Liability Company (PT) Perhutani through Government Regulation No. 14 of 2001 (Perhutani, n.d.). These regulatory changes emphasize Perhutani's function as an economy-oriented state-owned enterprise in addition to its other functions as guardian of environmental sustainability, socio-cultural systems, empowering communities around the forest, so that they can benefit from the forest. As a result of this change in function, illegal logging is unavoidable, and this creates opportunities for the emergence of thuggery and certain groups of individuals who collaborate with unscrupulous Perhutani, capital owners, and even the government to act illegally and exploit forest products to an excessive degree for personal gain. (Moeliono, Wollenberg, Limberg, & eds., 2009).

According to Harahab, the area of mangrove forests has a significant impact on the production of captured fish. According to Janssen and Padilla, the rapid decline of mangrove forests results in the loss of essential environmental and economic goods and services, such as forest products, sustenance, habitat, and fish reproductive grounds. (Setiawan, 2017).

Forest destruction in the Sendang Biru area has resulted in a decrease in the carrying capacity of the environment for carrying capacity of coastal communities, causing losses and disasters. The disasters that frequently occur in Sendang Biru can be divided into three categories: natural, economic, and social disaster. The natural disasters that occurred were erosion and landslides into the sea along the coast of Sendang Biru. Numerous wells and pure water sources along the river have dried up, causing drought and decreased groundwater

discharge. During the rainy season, siltation of the brackish estuary and landslides along the river's banks frequently cause inundation. The sedimentary soil itself can inhibit the growth of replanted mangroves. Reduced coastal forest as a buffer zone for tidal flooding or seawater flooding as a result of rising sea levels is also a threat to the livelihoods of those who reside along the banks of Sendang Biru.

The decline in the function of coastal forests has also affected the economy of the Sendang Biru community. Although, there is no clear data on the amount of loss, BASB estimates that ecological losses are approximately 117.000 m<sup>2</sup> or equivalent to 487 billion IDR (Saptoyo, 2017). In the 1980s, the southern sea of Malang, including the Sendang Biru region, was referred to as East Java's fish warehouse.. This area was once a prosperous area with abundant fish resources such as tuna, barong shrimp, skipjack and squid (Pertwi, 2016). Since the decline in the function of the protected forest, the carrying capacity of the environment for the economic life of the Sendang Biru coastal community has also decreased. Rob and landslides into the sea have damaged marine ecosystems, including fish. Fishermen are unable to go out to sea and their catches are decreasing, while peripheral fish are becoming rarer because their habitat is damaged. According to Lia, a conservation activist, "Sendang Biru, which was once abundant in fish, experienced an abrupt fish famine throughout the 2000s. As a fish producer, prosperous Sendang Biru has fallen on hard times" (Anggawa, 2017).

In addition, the drought conditions have made it difficult to find clean water sources. The large number of sources of clean water that are dry or damaged due to landslides and sedimentation makes access to clean water even more difficult. Lack of water also obstructs conservationists in maintaining and caring for plants. As a result, many new plants die. Even though planting and caring for trees also requires money. The impact of depleted coastal forests is also felt by communities that seek branches for cooking fuel. In the past, coastal forests served as a source of firewood for locals. Since the forest has diminished, it has become more difficult to obtain timber.

Destruction of forests has also spawned social catastrophes, it is conflicts of interest between pro- and anti-conservation groups. The pro-conservation group is a community called BASB that consciously engages in an autonomous conservation movement. On the other hand, contra-conservation is a community group that supports the economic conversion of forest functions. This community organization was established by Perhutani to develop coastal areas for tourism.

Ideally, the formation of this organization will result in a type of cooperative forest management between the Perhutani and the community, which is called the Joint Community Forest Management (PHBM) program. This initiative was created to resolve conflicts that arise between the community and Perhutani during forest management activities (Perhutani, n.d.). However, conservationists give different views about Perhutani and counter-conservation groups. From the interview, the purpose of Perhutani's formation of a production forest management group is to create a conflict of interest by bringing together two groups of individuals with divergent interests. BASB and the forest area management groups deliberated in order to reach a mutual agreement without causing damage to either party, so as not to be provoked by the social division that could have sparked the conflict. The two parties continued their respective activities in the territory that had been jointly determined..

BASB is aware of their success in preserving nature and administering conservation areas through ecotourism has prompted many parties to view this area, which is renowned for its natural beauty and sea, as a region with significant economic potential. Perhutani believes it has the authority to administer the Clungup region. The conservation community, on the other hand, views Perhutani as one of the actors or a free rider in the extensive conversion of forests from

protection zones to production forests. BASB does not want Perhutani to assume responsibility for the condition of the forest in the Clungup region on the grounds that the implementation of PHBM is not transparent, degrades nature, and violates their conservation principles. The conflict resulted in the detention of Saptoyo and two of his members by the authorities in May 2015 on charges of illegally accessing state forest areas and enriching themselves through extortion. The conservators were also accused of suffering from mental illness and belonging to aberrant sects (Saptoyo, 2017).

On the other side, the government of Malang Regency appears not interested. The district administration has never conducted an audit of forest devastation in the region. In fact, Malang's municipal administration has an interest in the development of coastal forest areas. Encouragement of regional autonomy affects the desire of local governments to develop coastal tourism potential. To avoid conflict with the Perhutani and local communities, the regional administration is hesitant to express its own interests publicly (Saptoyo, 2017).

In many regions of Indonesia, local administrations, the Perhutani, and local communities frequently disagree over forest management rights. Conflict discouraged international NGOs from contributing to conservation efforts. One of them is USAID, an American donor organization that intends to assist BASB and Supervisory Society Group (Pokmawas). They prefer to avoid conflicts with Perhutani and those in authority over the administration of the Sendang Biru coastal forest, however, because this conservation area is still owned by Perhutani.

### **Sendang Biru Local Community Coastal Forest Conservation Movement**

Since 2004, Saptoyo and his daughter Lia Putrinda Anggawa have led the Green Belt Movement to empower the Dusun Sendang Biru residents to carry out conservation on their own. They reforested and educated the community on the significance of conservation (Saptoyo, 2017). Saptoyo began his movement with the strategy of *sambang omah* (door-to-door) socialization and *Jagongan*, which is a traditional, constructive method of inviting the community and providing understanding to the community while sitting, chatting, and drinking coffee in traditional coffee shops and residents' homes. Even though not all of them are enthusiastic, the number of residents with an interest in conservation is growing. Since 2006, BASB has been routinely regenerating forests by planting mangroves and other plants from their own nurseries alongside approximately 25 locals who have been successfully recruited for the cause. They also refer to it as GBM, which is a movement to restore the function of natural ecosystems by planting trees along the littoral.

The BASB conservation area is focused on the Celungup location with a land area of 81.000 m<sup>2</sup> of mangrove land and 117 hectares along the coast consisting of Clungup Beach, Gatra Beach, Asmoro Beach, Bangsong Beach, Savana Beach, Mini Beach, Batu Pecah Beach, Wareng Hill, Tiga Warna Beach. (Anggawa, 2017). The area that has been rehabilitated is approximately 73 m<sup>2</sup>. The remaining 8 m<sup>2</sup> is an area that is difficult to return because it has become agricultural land and plantations.

An interesting finding in their movement was the adoption of a strategy aimed at avoiding conflict with forest encroachers who had settled the area for agriculture. BASB frees up land that has been controlled by encroachers by offering compensation fees for leaving the area. One of conservators, Mr. Is, said that BASB uses the foundation's cash funds resulting from the management of ecotourism and donations from the outside community. "BASB does not buy land, because the land does not belong to them, but a kind of "swap" or barter," he added. The consideration is that forest encroachers also need income. They have no other source of income apart from agricultural produce on the former forest. Forced eviction does not guarantee that

they will leave land that has been occupied for a long time and has the potential to create conflict. The hope is that the money from the barter can be used to start other businesses that do not break the law and damage nature. Conflict resolution using a family approach has proven to be effective in freeing land for rejuvenation, minimizing conflict and sticking to the principle of empowerment, as quoted from Saptoyo's statement below:

*“it is impossible for me to kill my own neighbors by expelling them from the place where they make a living. Even though their actions are wrong, they are also looking for livelihood in that area. Moreover, if the approach is too extreme, it can be sure that there will be a conflict between us. Hopefully, the money will be used to start other businesses and hope they will join us to preserve this coastal forest.”*

In contrast, when forest encroachers are encouraged to plant trees in areas that have not been abandoned, they typically damage the tree bases, but the trees can still be seen sticking out of the earth and ultimately dying. The solution proposed by BASB is reforestation utilizing an intercropping system with fruit-bearing trees such as mango, durian, avocado, etc. The expectation is that the plants will not be damaged, it will continue to grow, and that the land users will be able to appreciate the results.

After nearly a decade of operation, the actions taken by Saptoyo and BASB have paid off. Since 2006, approximately 73 hectares of coastal forest have been regrown. Numerous forest animals, including primates and birds, began to arrive. In addition, numerous fish species are beginning to reappear in the waters surrounding the mangrove forest, indicating that the forest's ecosystem has begun to recover (Septian, 2015).

Accordingly, the awareness of the local community to participate is growing. This condition is evidenced by the active involvement of the community in protecting, maintaining and preserving the forest. The local government of Malang Regency and Tambakrejo Government also supports BASB's efforts. This is evidenced by the formation of the POKMAWAS GOAL (Kelompok Masyarakat Pengawas-Gatra Olah Alam Lestari) by the Department of Maritime Affairs and Fisheries of the Malang Regency Government. By Pokmaswas, the volunteers conduct outreach to fishermen and the community about the importance of conservation (bhaktialam, n.d.).

BASB with the motto "Hidup bersama alam" has also been successful in bolstering the local community's economy through the management of the conservation area for limited tourism purposes. Consideration is given to restrictions so that the forest is not harmed and vegetation can flourish. The number of visitors is limited to 100 per day, and they may only walk. For damage prevention, visits are closed on holidays and New Year's Day.

As an entry tickets, visitors are required to purchase and plant mangrove seeds. Each visitor is charged between IDR 1,000 and IDR 6,000 for admission. Each tourist is also accompanied by a supervisor. Every piece of cargo that has the potential to become waste is logged and must be returned upon departure. Visitors who litter and disregard the rules will be fined (Saptoyo, 2017). The guides also introduce visitors to the culture of eco-friendly living, such as using food wrappers made from materials that are easily decomposed by soil, such as banana leaves, teak leaves, and hibiscus leaves, and introducing hollowed-out garbage bags to prevent the disposal of plastic and cigarette waste in the conservation area..

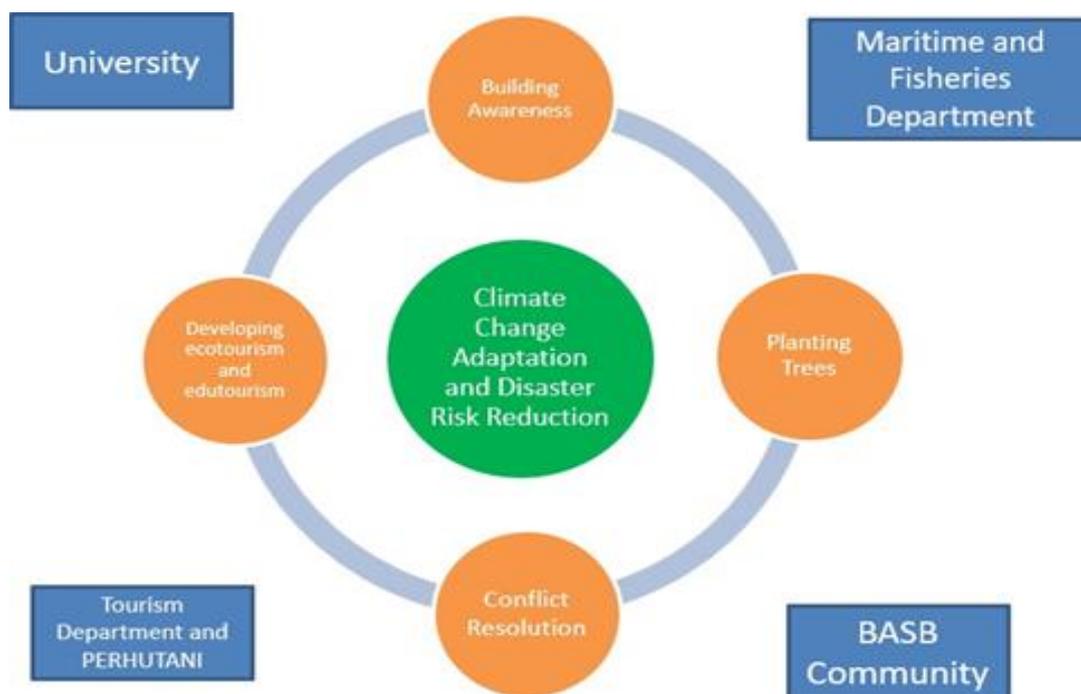
Because the majority of volunteers do not have a consistent income, the use of conservation land for tourism is intended to provide incentives for local communities to play an active role in protecting and caring for the forest. Even though it was opened for tourist destinations, its management model is not profit-driven; rather, it seeks solely to empower local

communities without compromising ecological principles, or what is commonly known as ecotourism. The results are also applied to mangrove nurseries (Saptoyo, 2017). Initially, Perhutani prohibited BASB's relocation. However, Perhutani and BASB consented to a profit-sharing system to avoid protracted conflict.

To support this empowerment, Lia, assisted by volunteers from Biophilic students who are members of BASB programs, provides local volunteers with English language training and environmental insight. The students involved are from Muhammadiyah University of Malang, Brawijaya University and from various other campuses.

Aside from ecotourism, BASB has many programs to invite tourists to restore the function of the adjacent ecosystem, such as Sidolan (Sinau Sambil Dolan), an educational tour (edutourism) designed to raise environmental and nature preservation awareness. The Baby Trees program involves the adoption of trees both individually and collectively. The trees are planted, given a name, and taken care. BASB received several awards such as the 2015 Adhibakti Mina Bahari, the 2015 Menuju Indonesia Hijau (MIH) award nomination, and the 2016 Kalpataru Environmental Pioneer at the East Java Province level for its endeavors to preserve the sand forest (bhaktialam, n.d.).

Based on the preceding explanation, the BASB's overall strategy can be described by the model depicted in the following figure:



**Figures 1:** Illustration of a model of the relation between actors, roles and goals of the green belt movement

The movement model for protecting coastal ecosystems based on local communities that BASB has implemented in conserving and empowering local communities is implemented with strategies, including first, building community-based environmental awareness of local

communities to function in forming the identity of local communities as conservationists who closely adhere to the community principle (*gemeinschaft*). Second, reforestation along the coast (green belt) can at least restore ecological functions and carrying capacity (climate change adaptation) and reduce the risk of natural disasters.

Third, conflict resolution through an amicable barter system as compensation for land acquisition and planting fruit trees has become a good proposition for forest land users to avoid conflict and ensure their economic sustainability. Fourth, economic empowerment through the development of limited ecology-based tourism (Ecotourism) through the Baby Trees program and education-based tourism (Edutourism) through the Sidolan program constructively build public awareness in preserving the environment.

### **Strengthening the Role of Women in the Environmental Movement for Disaster Mitigation Through the Green Belt Movement**

The strategy that has been developed by BASB is successful in its conservation efforts to save coastal forests. However, GBM carried out by BASB will be better, inclusive and of global value by inducing the value of feminism in the form of gender mainstreaming in its movement. Willingness to involve the role of women in it as a form of recognition that men and women have the same rights and obligations as well as functions in nature conservation..

The following considerations will confirm the importance of the value of feminism or gender mainstreaming which must be an inherent spirit in efforts to preserve nature. First, the originality of the Green Belt Movement is an eco-feminism movement that was born because of the encouragement of women with the aim of empowering society, especially women, not merely a movement to plant trees in a long stretch shaped like a belt (Maathai, 2012).

GBM departs from the fact that the destruction of nature has a direct impact on women's lives. The loss of the old culture with its sublime local wisdom is replaced by a new culture that tends to be capitalistic which encourages the destruction of forests, replaced by commercial plantations. The result is drought, loss of biodiversity, and high poverty rates which have a direct impact on women as fully responsible for the domestic sector and for the survival of family members (Maathai, 2012).

Women and nature have a close relationship. Nature is gentle, and full of compassion, so do women who have gentle, caring, protecting, and nurturing properties. Women and nature are two things that both must be protected. Therefore, to save nature, women must be involved in it. Women must be elevated in rank to jointly save the environment.

GBM in BASB terminology is a movement to plant mangrove trees and other plants in coastal areas. BASB represented by Mr. Saptoyo, Lia, Mr. IswicaHYo, and Andalusia Alghani said they did not know that the movement had values of women's empowerment (feminism). However, what was interesting during the interview was that Saptoyo said that when he and his daughter Lia started the movement, they intended to improve Sendang Biru women who generally experienced economic difficulties. The damage to the Sendang Biru forest has also had a big impact on the women who use dry wood in the forest for their daily cooking needs. Saptoyo's reason for inviting his daughter along was, apart from his son's interest in working with his father in an effort to restore the coastal forest, it was also to make it easier to approach and socialize by inviting mothers around Sendang Biru to participate. This is the foundation and basic capital of GBM in Sendang Biru.

Second, from a disaster perspective, women, children, people with disabilities and the elderly are vulnerable groups. Vulnerable groups are those who have special needs who are at risk due to physical, psychological or health conditions (KOMNAS HAM, 2020). According to BNPB and KEMENPPA reports, around 60-70% of women, children and the elderly were

victims of the 2004 Aceh tsunami (KEMENPPA, 2016). Jose Ferraris as the representative for the Head of the United Nations Population Fund (UNFPA) Indonesia explained that the condition of women, young children and adolescents is very vulnerable when natural disasters come (Arinda, 2015).

Women have a high level of vulnerability when disasters occur, both natural disasters and social disasters such as wars and ethnic conflicts. Compared to men, the number of victims of women and children is the highest, especially women who are pregnant. In addition, women are vulnerable to sexual exploitation and violence when a disaster occurs. According to Anggraini Sariastuti, volunteers for the Yogyakarta earthquake in 2006, several female victims experienced depression because they were victims of sexual violence (KEMENPPA, 2016). Lack of clean water seriously endangers a woman's reproductive system, the availability of other basic needs such as sanitary pads, clean underwear, tents, toilets and places to change clothes specifically for women, to lactation and delivery rooms. During an emergency, the role of women in the domestic sector, such as public kitchens, health care, and so on, cannot be ignored (Arinda, 2015).

Third is gender mainstreaming. In the disaster perspective as mandated by Law no. 24/2007 concerning disaster management makes no difference in religion, ethnicity, race, group, gender, or social status. The law expressly states the principle of equality before the law and in government. Furthermore, the RPJMN stipulates the principle of justice as one of the eight national development missions, meaning that there is no discrimination between individuals in any form, gender or between regions. In addition, in the National Plan for Disaster Management and the National Action Plan for Disaster Risk Reduction, both recognize that gender inequality will have an impact on women in disaster situations, and that the unequal position will be exacerbated by the special needs of women in disaster situations. Recognition of the importance of a gender perspective has also been an important note at the international conference on disaster management by the United Nations in 2005 which agreed on the Hyogo framework for action (Arinda, 2015).

BASB has incorporated the values of the genuine green belt movement into the movement's fundamental principle. However, the foundation of BASB's environmental movement must be bolstered by increasing opportunities for local women to assume the role of primary mover. Due to their direct contact with the domestic sector of the household, women can respond to environmental changes more rapidly than males. The ecofeminism movement in Kenya, led by Wangari Maathai, and the Chipko Movement in India have demonstrated that women can play a role that is consistent with global climate change adaptation and calamity mitigation objectives. Intensive and extensive socialization is required to raise awareness, provide positive affirmations, and instill confidence in local women that they can effect positive global environmental change.

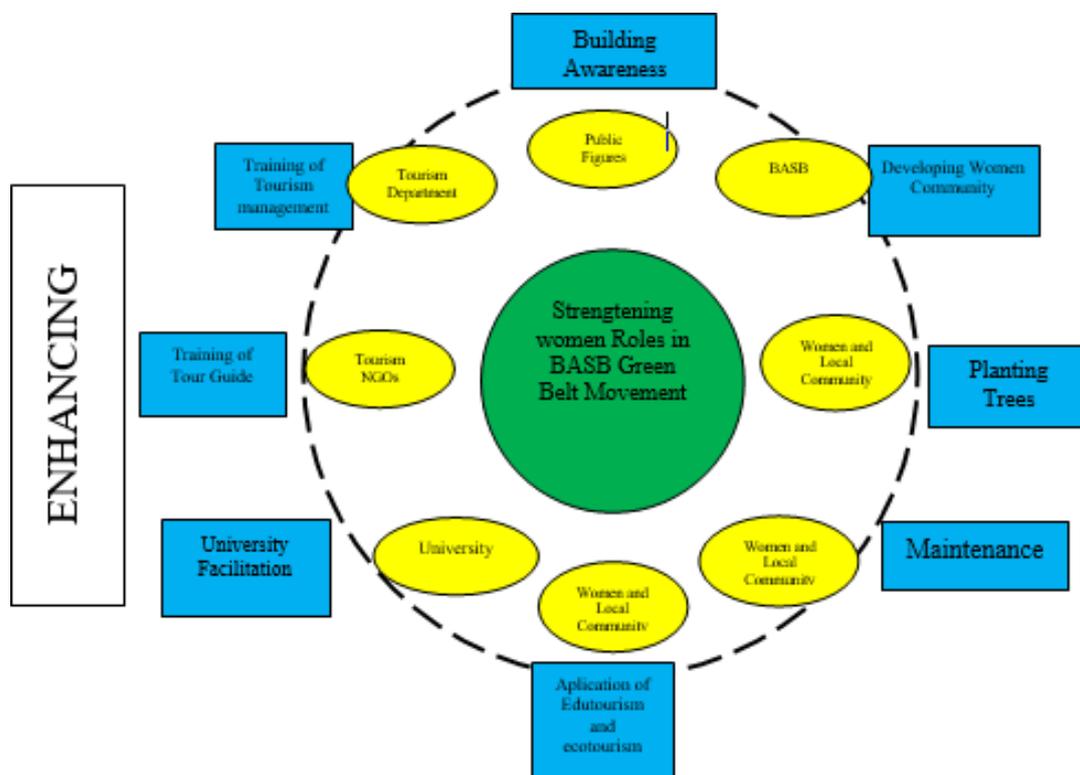
The next step is institutionalization through the formation of a women's community in the environmental movement. The purpose of community institutionalization is to collect and organize movements so that they are well programmed. The existence of the community will build a shared perspective among them so that a shared identity is formed that will strengthen the movement. Another benefit of having a community is facilitating internal and external coordination, building a wider network and support with other movements and the wider community both nationally and internationally.

Supporting the strengthening of community institutions, it is important to build local women's human resources by providing educational programs and technical training that will support them in managing conservation movements that with economic-ecological values (ecotourism). First, providing endowment environmental and disaster insights which will be

enriched by knowledge of disaster risk reduction including climate change. A culture of disaster awareness is required for everyone to comprehend risks and be able to manage threats, which contributes to community resilience against disaster risk.

Second, affording provision of tree planting and forest maintenance strategies. Third, postulating training on ecological and educational-based tourism management. Fourth, equipping the women's community with tourism management training, tour guide training and improving English skills. Fifth, encouraging the support of universities as facilitators of educational programs carried out through research and community service. Sixth, developing a network of cooperation with NGOs and local governments and establish multi-actor collaboration between local governments, Perhutani, and environmental and tourism NGOs. Local government support in the form of a budget is needed to support the sustainability of the movement.

As an illustration of the relationship between various actors and roles in increasing the role of women in the green belt movement for disaster adaptation and mitigation can be seen in the following figure.



**Figure 2:** Illustration of the Relationship Model Between Actors, Roles and Goals of the Green Belt Movement for CCA-DRR

## Conclusion

The Sendang Biru coastal community conservation movement (BASB) is a genuine movement born from local community initiatives and is called the Green Belt Movement (GBM). Efforts to restore the function of forests as a support for the global environment have been successful. This conservation supports global efforts in climate change adaptation and disaster mitigation. Integrating women's perspectives in the development of the gender mainstreaming movement really needs to be done to build awareness of the importance of involving women as actors in doing mitigation and adaptation. It is hoped that many benefits will be received by women from the management of conservation areas that vary economically. The role of universities and the government is needed to strengthen and develop this movement so that it has a broad impact on society. In addition, the development of a multi-sector cooperation network between stakeholders needs to be carried out to ensure the sustainability of the movement.

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