Jurnal Pemberdayaan Masyarakat Madani, 8 (2) 2024, 1—13
JURNAL PEMBERDAYAAN MASYARAKAT MADANI
http://journal.unj.ac.id/unj/index.php/jpm/index

Building Conservation Ranger Agent to Foster Mangrove Environmental Responsibility Using ABCD Approach

Asri Sawiji[1], Dian Yuliati[2]

[1,2]UIN Sunan Ampel Surabaya, Indonesia

ARTICLE INFO

Article history:
Received: 22th October 2024
Accepted: 21th November 2024
Published: 1st December 2024

ABSTRACT

Mangrove forests have an enormous role to play in environmental sustainability. Environmental pollution, especially plastic garbage trapped in mangrove roots, will damage the ecosystem. Awareness of the preservation of the mangrove forest ecosystem requires education from an early age. The empowerment activity aims to provide support to elementary school students who are in the coastal area on knowledge of the mangrove forest ecosystem as well as the management of garbage with the 3R system (Reduce, Reuse, Recycle) in Surabaya. This adjacent uses the ABCD approach (Asset Based Community Development). The stages of this dedication are (1) discovery, (2) dream, (3) design, and (4) destiny. The ABCD method uses the assets that exist in the community to be better utilized in efforts to reach a shared vision. This community service program has provided benefits and had a positive impact on students. As a result of this community outreach, there has been a significant increase in students' knowledge of mangrove ecosystems and waste management with 3R systems. In addition, as many as 69% of students are willing to become mangrove forest conservation ranger and are committed to environmental sustainability.

Keywords:
Asset-based community development, mangrove ranger, education

How to cite: Sawiji, A., Yuliati, D. (2024). Building Conservation Ranger Agent to Foster Mangrove Environmental Responsibility Using ABCD Approach. *Jurnal Pemberdayaan Masyarakat Madani (JPMM), 8(2), 1-13.* https://doi.org/10.21009/JPMM.008.2.02

* Corresponding Author.
sawiji.asri@uinsa.ac.id
(Asri Sawiji)

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.2.02

INTRODUCTION

Indonesia has an existing mangrove area of 3,364,080 Ha (KLHK, 2021). Mangrove in Indonesia has 45 species (not including known species) of 75 genuine mangrove species scattered around the world. It shows Indonesia has a high level of biodiversity. The mangrove area is spread along the coast of Sumatra, Kalimantan, Java, Sulawesi, Bali, and Papua (KLHK, 2021). Mangrove has essential functions in coastal ecosystems. The presence of mangroves can withstand the abrasion that occurs on the coast and make them an excellent place to breed for some marine species, such as fish and crabs. However, data from the Directorate of Coastal and Small Islands Disclosure, the Ministry of Maritime Affairs and Fisheries also mentioned that Indonesia's mangrove is currently in decline, with 637,624 Ha (19,26%) in critical condition (or closure of the title less than 60%). In contrast, the number of mangroves in good condition is as high as 2,673,548 (80,74%).

Syamsu's 2018 research stated that there was a decrease 120 ha or 52% between 2000 and 2015 in the mangroves area in Gunung Anyar District area, Surabaya. The change in the extent of the mangrove ecosystem in the Gunung Anyar district is due to the presence of the land used changed into settlements and apartments. A mangrove ecosystem with a healthy aquatic environment will support the livelihoods of coastal communities. Mangroves can serve as a habitat and lay larvae or eggs of fish in the sea; mangrove vegetation provides a natural supply of food for marine fishing, such as leaves, branches, fruits, and stems. This would imply an improvement in the livelihoods of coastal communities that depend on fishing. The existence of the mangrove ecosystem is vital to preservation, both in terms of density and extent, in order to provide tangible and intangible benefits to the community.

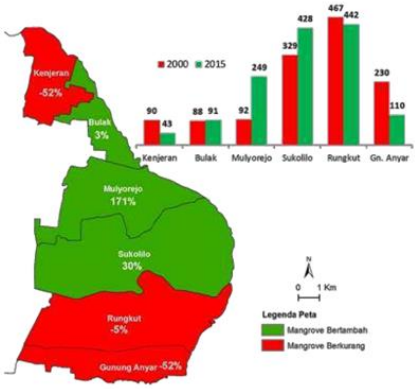

Figure 1.

Changes in the extent of mangroves on the East Coast of Surabaya in 2000 and 2015 (Syamsu, 2018)

In fact, along the east coast of Surabaya, there's a lot of plastic garbage surrounding the mangrove trees. These plastic garbage slices will slowly transform into microplastics that endanger the survival of marine

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

life. In Section 12 of Act No.18 of 2008 on Garbage Management, in principle, people in household garbage management are obliged to reduce and manage in an environmentally conscious manner. According to a report released by the World Economic Forum in July 2020, about 400 million tons of plastic are produced annually. The garbage covers the roots of the mangrove, so they can't breathe and absorb nutrients from the soil or seawater.

Garbage is an asset that could potentially be exploited. One attempt to mobilize the assets of plastic garbage is to use the 3R system (Reduce, Reuse, and Recycle). The 3R System, which is performed participatively with the community, is considered sufficiently effective in reducing the presence of plastic waste. The waste management system with 3R has the potential to increase the economic value of plastic trash. Recycling plastic waste into a particular product of monetary value can stimulate the public to have a greater awareness of plastic waste reduction action in the mangrove environment.

The partnership collaboration between the government, university, NGO's and local community simultaneously conduct to build the environmental sustainability. This effort is in response to the occurrence of damage to the mangrove ecosystem that has a direct impact on the life of coastal communities. Nevertheless, public awareness and participation is relatively need to be increase. It's one of those characterized by a lack of environmental responsibility of post-planting activities.

One method of empowering community to solve problems is the Asset-Based Community Development (ABCD) approach. John McKnight first developed this approach theory assumed that the only thing that can solve people's problems is society itself, and all efforts to improve start with social capital improvement. (Aronoff & McKnight, 1996). The identification of assets carried out using such an approach consists of human assets, physical assets, natural assets, and social and financial assets. (Susilawaty et al., 2017).

ROVERS – Mangrove Rangers is an empowerment program designed to connect education or education about the mangrove ecosystem with students at the level of primary and secondary education. It is based on the fact that students are future leaders and decision-makers. Introducing the mangrove ecosystem to young people through an exciting and inspiring experience, both in theory and in practice, is expected to increase the sense of ownership and responsibility to restore the Mangrove forest in their surroundings.

The Mangrove Ecosystem of Gunung Anyar Surabaya has a development direction that will connect the ecosystem area with the center of local activities of the community (Kristianto & Koswara, 2021). The youth and school students are also involved in the conservation of mangroves. They are expected to be able to direct stakeholders and the community coastal district of Gunung Anyar Surabaya to take care of and maintain the mangrove forest. The program will also prioritize the involvement of stakeholders in the community, including teachers and pupils. The stakeholders involved will be trained to provide mangrove conservation education effectively. The presence of this ROVERS dedication program with

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

the ABCD approach is expected to increase the community's knowledge and awareness of the sustainability of the mangrove environment, especially in the district of Gunung Anyar Surabaya.

LITERATURE REVIEW

a. Living Environment

This section contains a summary of theoretical studies related to how community development is done. According to the Law of the Republic of Indonesia No. 32 of 2009 on the Protection and Management of the Living Environment, the limitations of the living environment are as set out in Article 1, paragraph (1), namely: the unity of space with all things, forces, conditions, and living creatures including humans and their behavior, which affects nature itself, survival, and the well-being of humans as well as other living beings.

b. Waste

Waste is a material that is disposed of or discarded from the source as the result of human activity or natural processes that have not yet had economic value. According to Act No.18 of 2008, garbage is the residue of everyday activities of man and nature in solid form. In general, waste can be classified into two categories: a). organic waste Organic waste is waste that is naturally degradable or rotten, such as vegetable, fruit, and leaf residue. This waste is the most significant part of household waste. b). Inorganic waste Anorganic trash is a waste that cannot be degraded or rot naturally and takes a very long time to break down, for example, paper, plastic, wood, glass, fabrics, metals, etc.

c. 3R principle (Reduce, Reuse, Recycle)

Principle 3R (Reduce, Reuse, Recycle) The 3R waste management concept is a new paradigm in giving the highest priority to waste management 19, which is oriented towards the prevention of garbage buildings, minimizing waste by promoting reusable goods, and goods that can be biologically composed (biodegradable) and the application of environmentally friendly waste disposal. (Masyhur, 2018).

Waste reduction can be achieved through the principle of reduction, which refers to activities that can reduce and prevent the accumulation of garbage. Reuse means the reuse of worthy waste, and recycling means processing the waste into a new product. One example of how to reduce garbage is to recycle used plastic into eco brick crafts, wallets, and bags. People can implement the 3R (Reduce, Reuse, Recycle) principle in their daily lives with their creativity. The 3R principle can be described as follows:

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

Reducing means reducing everything that can lead to garbage by not using once-used materials and directly becoming garbage, as this can damage the environment. The example of reduction activities that can be done in everyday life are: 1). Choose products with recyclable packaging. 2). Avoid using and buying products that generate large amounts of garbage. 3). Use rechargeable products. For example, rechargeable writing tools. 4). Maximize the use of electronic storage devices that can 20 be removed and rewritten. 5). Reduce the use of disposable materials.

Reuse means re-using the trash that has been used, either with the same function or a different function. The example of reusable activities in everyday life are: 1). Choosing containers of bags or objects that can be used several times or repeatedly. 2). Reusing contains or packages that are empty for the same or other functions. 3). Using removable and rewritable electronic storage tools. 4). Using emails to send letters.

Recycling is a waste recycling activity. Reuse activities that can be done in everyday life are: 1). Choosing products and packaging that are recyclable and easily decomposable 2). Processing paper waste into paper or cardboard 3). Processing organic waste into compost 4). Processing non-organic garbage into valuable goods

d. Mangrove Ecosystem

The Mangrove ecosystem is a group of plants that live in the area of the 21st river. The mangrove forest is also known as tidal forest, coastal woodland, or even payau forest. The forests that exist along the coastline are called bacau by the people. In fact, the forest is more accurately referred to as the mangrove forest (Kelautan et al., 2012). Mangroves have specific characteristics that distinguish them from other forest vegetation. The differences between mangrove forests and other forests are that (1) it has relatively few tree types, (2) it has irregular roots (pneumatophores) such as curved anchors and germinations in the Rhizophora spp, and vertically germinating roots such as pencils in the pedal (*Sonneratia spp*) and in the fire (*Avicennia spp*), (3) it has seeds (propagules) that are vivipar or can germinate in the tree, especially in the *Rhizophorp spp* and (4) it has many lentils on the skin of the tree.

The mangrove ecosystem is crucial in the management of coastal resources on tiny islands. Mangrove serves as a filter to reduce adverse effects and significant environmental changes and as a source of food for marine (marine) and new biota. In addition, the ecosystem also functions in the treatment of waste through the absorption of excess nitrate and phosphate so as to prevent pollution and contamination in the surrounding waters. (Untuk et al., 2008).

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

MATERIAL AND METHOD

The coastal community empowerment strategy will focus on the Asset Based Community Development (ABCD) method. It can build a strong and comprehensive understanding of the natural and human resources available within the community (Al Kautsari, 2019). The ABCD approach can also be applied to building partnerships and community capacity. (Hufford et al., 2009). In terms of implementation, ABCD is more focused on the assets and powers of society. Compared to looking at the shortcomings/problems, ABCD looks more at the positive and the possibilities that can be done.

Participatory empowerment invites people to recognize and appreciate the potential they have and then mobilize the assets they have to start the process of action toward their change and freedom. The ABCD approach is assessed to increase the likelihood of the sustainability of the empowerment program that has been initiated. This approach attempts to observe the potential of natural resources as well as the resources of society that further maximize the potential that is preserved and unused.

The ABCD method has four key steps to conduct the accompanying research process: a) Discovery, the process of discovering and reclaiming success through a process of interviews that will be personal discoveries; b) Dream, done creatively and collectively to identify hopes or dreams in accordance with the potential or assets of the community, c) Design, a process in which the entire community is involved in learning about the strength or asset that it has in order to be able to use it constructively, inclusive, and collaboratively to the desired expectations, d) Destiny (Do) A series of inspirational actions that support continuous learning and innovation about "what will happen." (Dureau, 2013).

In this approach, the process of social development will map the physical and non-physical potential/assets of the society. Mapping of physical, human, social, financial, and natural assets is done in order to provide visualization of the community's freedom. Maps of natural resource assets such as mangrove ecosystems and 3R waste management are carried out by the community. The potential of the mangrove natural ecosystem that has not been optimized can be described so that efforts to enhance economic activity, such as the empowerment of mangrove ecosystems, will be able to improve the well-being of coastal communities.

RESULT AND DISCUSSION

STEP 1: DISCOVERY This asset-based community empowerment activity begins with an inventory of the Juara Elementary School Surabaya community assets. On the basis of the observations, the assets are identified. Found some assets owned by Juara Elementary School Surabaya that can be used in the activities of accompanying the management of garbage with 3R. The identified assets are categorized as physical, human, social, financial, and natural assets. Physical assets include the Basic School Building,

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

infrastructure in the mangrove ecosystem, inorganic waste such as plastic, and organic trash such as mangrove leaves. The following assets are human resource assets, namely the head of the school, teachers, primary school students, and tourist managers of mangrove forests who strongly support this activity. It is hoped that with such support, can motivate other school citizens to participate in waste management activities in nature independently and continuously. In addition to this community dedication, the author accompanies elementary school students in understanding how plastic waste management and educating them about the mangrove forest ecosystem. It is expected that students will be active participants in the implementation of activities and can pass on the knowledge acquired to other students. Financial assets are citizens of the community who are willing to help provide logistics during the implementation of activities. Finally, we have identified a natural resource asset, the Mangrove Garden of Surabaya, which is used as a site for the implementation of garbage management by using a 3R system in a mangrove forest area that has abundant biodiversity and associated biota.

Stage 2: DREAM The vision of the Surabaya Champions Basic School is to be a literature school to form intelligent, independent, and competitive pupils. One of the school's missions is to teach community, collaboration, critical thinking, and creative skills (school championship.sch.id). In order to realize the school's mission, it is necessary to use learning methods that stimulate children to become more critical and creative. One of them is practical learning in nature. In the context of the present dedication, I am learning about the mangrove forest ecosystem 3R waste management. Spreading in nature is expected to raise students' awareness and perspective of the obligation to care for the environment.

STEP 3: DESIGN Vision and mission A school that fosters creativity and critical thinking requires an experience-based learning method. One of them is learning in nature. On this dedication, activities are dedicated to the environment of the mangrove forest using program strategies such as Table 1. Based on the results of an inventory of the strategy of development of the program, four such activities were performed to realize the community's dream.

Table 1. The strategy for the development of the program

No	Asset Strength	Dream	Activities
1	Nature (Mangrove forests, rivers, coastal sea, biota)	• Clean and unpolluted ecological environment • The abundance of biotic associations	• Forming rovers (the agent of mangrove forests ranger) • Giving learning about habitat and biota associations and mangrove jungle
2	Human resources (Elementary school children, Managers of Mangrove Forest, Teachers)	• The formation of human resources that cares about the sustainability of the mangrove rainforest	• Implementation of good waste management in various places such as schools (system 3R) • Implementation of activities caring for mangrove woods in intra-

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

No	Asset Strength	Dream	Activities
			structural activities of primary schools

STEP 4: DESTINY

A. Introduction to the 3R Concept (Reduce, Reuse, Recycle)

The introduction of 3R concepts to SD champion students is done by involving students in cooperation to clean the mangrove forest environment. The process of reduction is by cleaning the garbage around the roots of the mangrove. Then, the plastic garbage that has been collected for reuse can be sorted into valuable objects. Students use the trash that has been collected to then become a valuable asset. The impact of inorganic garbage on mangrove roots was explained to the students. Plastic waste can have a negative effect on environmental pollution. Plastic garbage trapped in mangrove roots has not been degraded naturally for years. Plastic interferes with the growth and development of plants and affects the organisms that live around them.

Figure 2.
Students collect plastic garbage around the mangrove forest.

The process of disposing of plastic garbage is done and then made into other functional creations. Students use the trash that has been collected to become a helpful asset. The impact of inorganic garbage on mangrove roots was explained to the students. Plastic waste can have a negative effect on environmental pollution.

Plastic garbage trapped in mangrove roots has not been degraded naturally for years. Plastics will interfere with the growth and development of plants and affect the organisms that live around them. Plastics trapped in the roots of mangroves will also cause microplastic poisoning. As a result, plastic garbage can disrupt the food chain and the harmonization of the mangrove forest ecosystem. The presence of direct learning in nature can stimulate and develop the creativity of students, which is expected to improve the ability of the child to think. The experience of learning about nature directly outside the barrier and observing scientific phenomena will stimulate the child's imagination and

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

curiosity. It can encourage them to be able to see the world differently.

Team/group collaboration invites students to collaborate on different ideas and solve problems together. Social interaction between students or discussion of creative ideas will generate different perspectives as well as stimulate creativity and develop student skills.

Figure 3.
Results of Student Innovation Work using 3R Concept (Reduce, Reuse, Recycle)

b. Increased Knowledge of the Mangrove Forest Ecosystem

On the side of the knowledge of the mangrove ecosystem is carried out in the Gunung Anyar Mangrove Area. Students were invited to travel around the tourist area using field observation methods and were asked to observe the associated biosphere, identifying the mangrove species there. Knowledge of the definition and benefits of mangrove forests was explained during the observation process. The mangrove forest is an ecosystem that can be found in coastal, tropical, and subtropical areas. The biodiversity of the mangrove rainforest is one of the most productive and diverse ecosystems in the world. Mangrove is a breeding place for many species of fish, molluscs, crustaceans, birds, and marine mammals.

Figure 4.
Observation of mangrove species and biota association in mangrove forest habitat

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

Mangrove trees have particular adaptations that allow them to live in harsh environments. The mangrove roots that sprinkle over the surface of the mud, commonly known as the "pneumatophore," will enable them to obtain oxygen even though they are submerged in the spring water. In addition, the ecological function of the mangrove forest can also serve as a shoreline protector that prevents the arrival of waves and storms, as well as reduces soil abrasion and erosion.

Water pollution pollutes the sea from both organic and inorganic waste, which can affect the quality of seawater. Mangroves can act as a water quality guarantor by absorbing and reducing land pollutants, as well as filtering excess nutrients. The mangrove forest is also very beneficial to humans. Mangroves can be used as an attractive nature tourist destination, and some mangrove fruit can also be used for a variety of seafood processing. Therefore, there is a need for successive generations to play the role of Rovers and act as guardians of coastal ecosystem sustainability, environmental balance, and sustainability of natural resources.

SD Champion students look enthusiastic about learning about the mangrove forest ecosystem. This is evident from their advancement of knowledge before and after the natural learning activities. The evaluation process is carried out by giving rankings for their understanding of pre-training and post-training mangroves. Sticking stickers to cardboard media is an effective method in the evaluation process because presenting posters clearly visualize an improvement in the experience they gain.

Figure 5.
Ranking on improved student understanding of mangrove

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

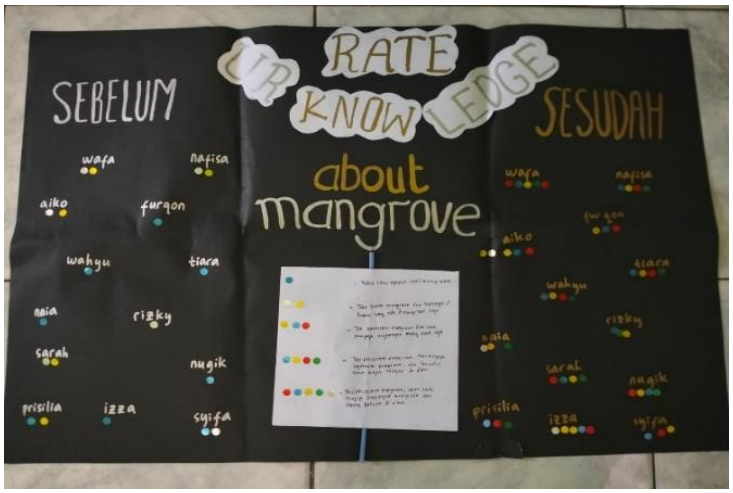

Figure 6.

The results of the Evaluation of Understanding of Mangrove Scoring

Categories are 1 to 5, but the description is as follows:

Table 2. Score Criteria Understanding Mangrove Forest Ecosystems and Rovers (Mangrove Ranger) Score Description

Score	Description
●	Don't know about mangroves.
●●	Knowing about the mangrove forest ecosystem and the biota that surrounds it
●●●	Learn about the ecosystem of the mangrove forest and how to maintain a mangrove environment.
●●●●	Knowing about the ecosystem of the mangrove forest, wanting to keep a mangrove environment (rovers), and willingness to learn about nature.
●●●●●	Knowing about the ecosystem of the mangrove forest, willingness to preserve the environment of the mangrove (rovers), and enjoying learning in nature.

Table 3. Score Scores Improved student understanding of the mangrove forest ecosystem and readiness to maintain the mangrove forest (Rovers) before and after intervention

Student	Score		Improvement
	Before	After	
Student 1	2	4	100%
Student 2	2	4	100%
Student 3	2	5	150%

ISSN
2580-4332 (online)
DOI: doi.org/10.21009/JPMM.008.1.02

Student	Score		Improvement
	Before	After	
Student 4	1	3	200%
Student 5	1	4	300%
Student 6	1	4	300%
Student 7	1	4	300%
Student 8	1	3	200%
Student 9	2	4	100%
Student 10	1	4	300%
Student 11	2	3	50%
Student 12	1	5	400%
Student 13	2	3	50%
Average knowledge improvement**:**			**196%**

From the above results, it can also be concluded that of the 13 students in the 5th grade of SD, Champions Surabaya, nine children give a rating >4 (post-training). Scores above 4 indicate that they know about the mangrove forest ecosystem, are willing to preserve the mangrove environment (rovers) and learn about nature. It suggests that at least 9 out of 13, or 69% of children, are prepared to be mangrove forest keepers and preserve environmental sustainability.

CONCLUSION AND RECOMMENDATION

Based on the inventory of assets, it was found that in Juara Elementary School Surabaya, there are physical assets such as buildings or school buildings equipped with various facilities that can be used as a place of coordination for the implementation of activities. Human resource assets, the teachers who are ready to provide support, as well as students of the Juara Elementary School Surabaya who are actively participating in the execution of mangrove ranger agent activities. In addition, there is a natural resource asset of the Mangrove Garden, which is being carried out by the accompanying activities. The accompaniment is carried out through three activities, i.e., accompanying garbage management with 3R systems and accompanying community knowledge about mangroves. Through the implementation of these activities, 69% of the participants are expected to be motivated to become environmental guardians of the mangrove forest that is around their school neighborhood. This is evident from the changes that occurred during the dedication process, i.e., there was a significant improvement (196%) in students' knowledge about the management of garbage with the 3R system and mangrove forest ecosystem.

ACKNOWLEDGEMENT

We want to express our gratitude to UIN Sunan Ampel Surabaya for funding this community outreach. We also thank the Juara Elementary School Surabaya, for the support provided during the

implementation of the activities. We also thank all the students who are involved in the series of activities so that this empowerment activity goes well.

REFERENCES

Al-Kautsari, M. M. (2019). Asset-Based Community Development : Strategi Pengembangan Masyarakat. Empower: Jurnal Pengembangan Masyarakat Islam, 4(2), 259. https://doi.org/10.24235/empower.v4i2.4572

Aronoff, Marilyn, and John McKnight. 1996. The Careless Society: Community and Its Counterfeits. Vol. 25

Dureau, C. (2013). Pembaru dan kekuatan lokal untuk pembangunan, Australian Community Development and Civil Society Strengthening Scheme (ACCESS) Tahap II (II).

Hufford, L., West, D. C., Paterniti, D. A., & Pan, R. (2009). Community-Based Advocacy Training: Applying Asset-Based Community Development in Resident Education. Academic Medicine, 84(6), 765–770. https://doi.org/10.1097/acm.0b013e3181a426c8

[KLHK] Kementrian Lingkungan Hidup dan Kehutanan RI. Peta Mangrove Nasional Tahun 2021 Jakarta (ID): Direktorat Konservasi Tanah dan Air

Kristianto, D. H., & Koswara, A. Y. (2021). Arahan Pengembangan Kawasan Ekowisata Mangrove Gunung Anyar Surabaya. Jurnal Teknik ITS, 10(2). https://doi.org/10.12962/j23373539.v10i2.67017

Masyhur, U. (2018). Al Ulya: Jurnal Pendidikan Islam Volume 3 nomor 1, edisi Januari – Juni 2018. Al Ulya, 3(1), 81–96.

Sekolah Juara. 2023. https://sekolahjuara.sch.id/sekolah-juara/sd-juara-surabaya/

Susilawaty, Andi, Andi Ariyadin Putra, and Nurdiyanah. 2017. “Identifikasi Aset Sarana Sanitasi Dasar Dengan Pendekatan Asset Based Community Development (ABCD) Di Desa Baruga Kecamatan Bontomanai Kabupatan Kepulauan Selayar.” Public Health Science Journal 10(1):96–107.

Syamsu, I. F., Nugraha, A. Z., Nugraheni, C. T., & Wahwakhi, S. (2018). Kajian Perubahan Tutupan Lahan di Ekosistem Mangrove Pantai Timur Surabaya. Jurnal Media Konservasi, 23(2), 122–131.

UU No.18 tahun 2008 tentang Pengelolaan sampah

World Economic Forum. (2020). Plastics the Circular Economy and Global Trade 2020