



## Implementation of the Environmental Care and Culture Movement in Schools

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### ABSTRACT

**Purpose**—This research aims to describe the implementation of the Environmental Care and Culture Movement in Schools at the National Adiwiyata School

**Methodology**—The research uses a qualitative approach in the type of case study at SMA Negeri 2 Wates. Data sources include school principals, vice principals for curriculum, heads of adiwiyata, teachers, adiwiyata cadres, school committees, curriculum documents, and other related documents. Data were collected through in-depth interviews, observations, and document studies. Data analysis uses an interactive model.

**Findings**—The implementation is carried out with various concrete actions that integrate aspects of Environmentally Friendly Behavior, namely cleanliness, sanitation and drainage functions, waste management, planting and maintenance of trees/plants, water conservation, energy conservation, and innovations related to Environmentally Friendly Behavior into learning in all subjects, extracurricular activities, and self-habituation of school residents. Environmentally Friendly Behavior is applied to the surrounding community through community-based programs. The SchoolSchool establishes a working network with external parties to support the movement's sustainability. Campaigns and publications are carried out through concrete actions to increase environmental awareness. Schools form and empower adiwiyata cadres as agents of change that can encourage and mobilize school residents to implement environmentally friendly behaviors and the formation of adiwiyata ambassadors.

**Significance**—Schools can consider the study's results to effectively manage and implement the Environmental Care and Culture Movement in Schools in the National Adiwiyata.

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### INTRODUCTION

Education is the key to improving the quality of human beings in Indonesia and achieving the Sustainable Development Goals 2030 and the golden generation of 2045. The essence of education is to teach good values through example, morality, and other positive aspects (Aslan, 2023). Education is an effective

means of providing knowledge and skills and instilling awareness of the importance of protecting the environment through environmental education. Environmental education is a learning process that aims to help students understand the environment and increase their awareness and responsibility for environmental sustainability (Noverita et al., 2022)

Indonesia faces serious environmental challenges like deforestation, global warming, and waste management. From 1990 to 2020, Indonesia ranked second with the worst deforestation in the world (Zulfikar, 2024). As a result, increasing carbon dioxide emissions from deforestation and fossil fuels trigger global warming (Pratiwi & Fitri in Rahmadania, 2022). The 2022 Environmental Performance Index positions Indonesia at 164 out of 180 countries (Wolf et al., 2022). This reflects the low performance of environmental management.

Waste is also a significant source of greenhouse gas emissions, contributing 1,580 billion tons of CO<sub>2</sub>e, or 3.2% of global emissions (Ritchie & Rosser in Aprilia, 2021). In 2023, Indonesia will have a total landfill of 17,441,415.28 tons of waste per year, of which only 11,593,592.76 (tons/year) of waste is managed (66.47%) while the rest is unmanaged (33.53%) (Direktorat Penanganan Sampah, 2023). With these problems, environmental education in schools is critical and needs to be improved to realize the 2030 Sustainable Development Goals (SDGs).

The Ministry of Environment and Forestry of the Republic of Indonesia 2006 created an Environmental Education program at all school levels in the form of the Adiwiyata program, which aims to create schools whose citizens are aware of environmental conditions and behave positively towards the environment to protect and manage the environment in schools. The program emphasizes sustainable school governance and aligns with the principles of sustainable development (Puspania, 2023). This is reinforced by Landriany (Wahyuni & Rigianti, 2023) that Adiwiyata has the goal of creating a school environment that has an awareness of environmental conditions and concern for environmental problems so that environmental conservation efforts in the school environment can be carried out correctly. The Adiwiyata program has undergone renewal and refinement with the issuance of the Regulation of the Minister of Environment and Forestry with number P.52 of 2019 (Kementerian Lingkungan Hidup dan Kehutanan RI, 2019), in addition to the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number P.53 of 2019. The regulation is a foothold in carrying out the Environmental Care and Culture Movement at the PBLHS Movement School) Moreover, it gives the Adiwiyata award to schools throughout Indonesia that have successfully implemented the Movement. Based on the Decree of the Minister of Environment and Forestry Number 1176 tahun 2022 (Kementerian Lingkungan Hidup dan Kehutanan RI, 2019), a Senior High School in Kulon Progo Regency that received an award as a National Adiwiyata School in 2022, namely SMA Negeri 2 Wates.

The PBLHS movement is a refinement of the Adiwiyata program (Widjiasih et al., 2020). The PBLHS movement is a conscious, voluntary, networked, and sustainable collective action by schools to implement environmentally friendly behaviors (Kementerian Lingkungan Hidup dan Kehutanan RI, 2019). The implementation stage involves school residents and school partners, starting from the committee/parents of students, the surrounding environment, companies, and the mass media to announce the movement to the community (Pusat Pelatihan Masyarakat dan Pengembangan Generasi Lingkungan, 2020). The implementation refers to the applicable guidelines and involves all school residents. This consistent and comprehensive implementation is critical to properly achieving the School's/School's goals.

However, many schools implementing the PBLHS Movement still face various obstacles. The research results of Nurwidodo et al. (2020) show that implementing the Adiwiyata program can positively impact students' environmental literacy levels. There is also a tendency that the higher a student's score, the better their environmental literacy level. Even though it is related to Adiwiyata schools, this research analyzes the environmental literacy of Adiwiyata and non-Adiwiyata high school students, so it does not delve into the specifics of implementing the PBLHS Movement. The results of Rokhmahs research (2019) show that implementing the Adiwiyata program in forming students' environmentally caring character at MIN Tegalsari Wlingi Blitar is based on four components of the Adiwiyata program. Even though it is related to Adiwiyata, it still refers to the old regulations before it was reformed into the PBLHS Movement, so it does

not include new aspects that are integrated into the PBLHS Movement. Wahyuni's research result (2021) shows that the main focus is on Adiwiyata school management in instilling entrepreneurial character in students. The research found that implementation included the socialization of the vision and mission during ceremonies, learning, and student activities such as the School Environment Introduction Period, Clean Friday, and teacher familiarization. Although environmental programs are emphasized through extracurricular activities, learning materials, and allocation of funds for environmental facilities such as parks, composting, and environmental day celebrations, this research has not explored habits that integrate all aspects of environmentally friendly behavior. Research by Sari & Nurizka (2021) highlights that implementing the new PBLHS movement focuses on implementation in subjects, extracurriculars, and general self-adaptation but also has not explored the integration of all aspects of Environmentally Friendly Behavior. Likewise, Aini et al. (2022) examine the implementation of the PBLHS Movement, which is integrated with the curriculum and its obstacles. This research indicates that integrating an environmentally based curriculum only includes planting and maintaining trees/plants, water conservation, and energy conservation. The obstacles found were in the form of obstacles to developing learning tools and funding.

Based on these studies, it can be seen that the implementation of the PBLHS Movement has not included comprehensive integration of Environmentally Friendly Behavior in all aspects, starting from aspects of cleanliness, sanitation and drainage functions, waste management, planting and maintenance of trees/plants, water conservation and energy conservation, to innovation aspects related to Environmentally Friendly Behavior in Schools that have not been explored in depth. Apart from that, implementing Environmentally Friendly Behavior in schools for the community around the school and/or in the region, establishing work and communication networks, campaigns and publications for the PBLHS Movement, and forming and empowering adiwiyata cadres have not been widely explored. This research aims to answer the gaps in the study of the PBLHS Movement by comprehensively exploring the integration of Environmentally Friendly Behavior in all aspects, starting from aspects of cleanliness, sanitation and drainage functions, waste management, planting and maintaining trees/plants, water conservation, energy conservation, to innovation aspects related to Environmentally Friendly Behavior in schools. Apart from that, this research also highlights components that have been minimally explored, such as implementing Environmentally Friendly Behavior involving the community around the school, establishing work and communication networks, campaigns, and publications for the PBLHS Movement, and empowering Adiwiyata cadres to support the sustainability of this movement.

Starting in 2019, this school will implement the PBLHS Movement to update the Adiwiyata program. The SchoolSchool implements the PBLHS Movement by applicable guidelines so that after an assessment by the assessment team, the SchoolSchool is declared to meet the criteria as a National Adiwiyata School and was awarded by the Minister of Environment and Forestry of the Republic of Indonesia in 2022. This is important to discuss because this movement is a strategic effort to instill awareness and concern about the importance of preserving the environment in schools to overcome environmental problems in Indonesia and globally. In addition, this discussion is very relevant in showing the role of schools as agents of change in realizing a society that cares about the environment while supporting the achievement of SDGs goals. This is in line with the explanation from Baroya (Rahayu et al., 2024) that one of the main goals of environmental education is to form strong environmental awareness among students.

Based on the urgency of the problem and the lack of research on implementing the PBLHS Movement in national adiwiyata schools. Therefore, this article aims to describe the implementation of the PBLHS Movement in National Adiwiyata Schools. From the results of this study, it is hoped that it can provide recommendations to future researchers to explore more deeply the relationship with the strategies and innovations carried out by national adiwiyata schools in the implementation of the PBLHS Movement so that they can participate in solving environmental problems in schools, around schools, regionally, nationally, and globally.

## **METHODOLOGY**

### **Research Design**

This research uses a qualitative approach to obtain in-depth information about implementing the PBLHS Movement. This approach was chosen because it can explore the meaning behind individual experiences and interpretations of social issues (Creswell, 2013). This research uses a case study that aims to explore the case in more detail by collecting information from various sources (Raco, 2010). The case study was chosen because it provides a complete and rich picture of the practice of implementing the PBLHS Movement at SMA Negeri 2 Wates Kulon Progo Regency, Yogyakarta Special Region, from January to December 2024.

### **Data Collection**

Data collection techniques in research are the main thing to obtain accurate and in-depth data. Data sources in the interview include the principal, curriculum deputy principal, adiwiyata chairman, teachers, adiwiyata cadres, and school committees. Interviews will be conducted to explore information on the implementation of the movement. This interview is an unstructured type of interview. Researchers do not utilize interview guidelines that have been structured and detailed to collect information. Instead, the researcher only has an outline of the topics discussed during the interview (Sugiyono, 2015). Even though it is not structured, the researcher still uses the big topic as a guide so that the information obtained remains relevant to the research objectives. The observation in this study is a frank type of observation. Straightforward observation is an observation made by the researcher to obtain and collect data and openly explain to the respondents that the researcher is conducting research (Sugiyono, 2015). Observations in this research were carried out to collect data about the physical condition of the school, including its vision, mission, goals, physical condition (aspects of environmentally friendly behavior), learning, extracurricular activities, and personal habituation. This study also conducted a document study to analyze the curriculum and related documents.

### **Data Analysis**

The data analysis stage in this study refers to the interactive model analysis data component of Miles, Huberman, and Saldana (2014), which includes three main stages: data condensation, data display, and conclusion drawing/verification. Researchers simplified and filtered data relevant to implementing the PBLHS Movement at SMA Negeri 2 Wates in the condensation stage. The condensed data includes the results of interviews related to its implementation, observations related to the physical condition of the School regarding the school's vision, mission, and goals, the physical condition of the Schools (aspects of environmentally friendly behavior), learning, extracurricular activities and personal familiarization and document studies related to curriculum documents and other documents. This process is carried out to select and focus data to be more meaningful and support research objectives. Data display is the second stage in data analysis, which involves preparing information in an organized and compressed manner to facilitate drawing conclusions. In the context of this study, information related to the implementation of the PBLHS Movement at SMA Negeri 2 Wates is presented in the form of a concise and easily accessible table; the researcher organizes the results of interviews that have gone through a condensation process, then groups them according to relevant categories. This presentation makes it easier to observe the data and supports more systematic analysis at a later stage. Concluding is the final stage of data analysis. In this case, the researcher concludes and verifies the findings based on data that has gone through condensation and data presentation. This process is carried out by understanding the information prepared in advance according to the formulation of the problem. Verification is carried out by reviewing field records to ensure the data's accuracy and consistency to improve the research's quality, which is then summarized in the description of the research data.

### **Data Validity**

Researchers used two triangulation methods, namely source triangulation and technique triangulation. In

source triangulation, researchers analyzed data from various sources: the principal, deputy principal for curriculum, Adiwiyata team leader, teachers, Adiwiyata cadres, and school committee. Data from these interviews were compared and analyzed to see the consistency of information between different sources. Next, researchers used technical triangulation by comparing data from interviews, observations, and document studies. For example, data from interviews regarding the implementation of the PBLHS Movement was verified through direct observation and checking documents, such as curriculum documents and other related documents, to ensure conformity between the information obtained and actual conditions in the field. This process helps researchers ensure that the data collected is valid, consistent, and reliable.

## FINDINGS

This section presents the research results on implementing the Movement for Environmental Care and Culture in Schools at the National Adiwiyata School of SMA Negeri 2 Wates.

### Learning on Subjects

Implementing learning at SMA Negeri 2 Wates shows good integration in various subjects. All teachers follow the prepared Learning Implementation Plan or teaching module. Learning in the subject aligns with the existing lesson plan or teaching module. This is as follows from the interview with GUR/W:

*"As usual, there is already a lesson plan as a reference in learning according to each maple." (GUR/W, Monday, May 27, 2024)*

### Extracurriculars

A total of 22 extracurricular activities were held in the afternoon. Integrating the PBLHS Movement in extracurricular activities cannot be fully implemented. Extracurriculars can be fully scout-like, while others are integrated into the rules within the extracurricular, such as the obligation to bring their tumbler to reduce plastic use. In addition, hygiene during extracurricular activities is maintained by ensuring that students wash their hands before and after practice. The results of the interview with KS/W are as follows:

*"Yes, it is realized. That was the order. For example, they have to bring their tumbler for drinking. This is already economical in reducing plastic waste. Then also, for example, maintaining cleanliness is already managed by the cleaning working group, cleaning the training ground, washing hands after and before training." (KS/W, Monday, 27 May 2024)*

### Self-Habituation

Self-habituation of environmentally friendly behavior in cleanliness, sanitation, and drainage functions is carried out on clean Fridays to collect garbage and grass in the gutters in front of the school and drainage materials to facilitate waterways. The results of the interview with KA/W are as follows:

*"Usually if it is Friday, it is usually Friday morning, it is usually divided into groups, per working group, there is a compost working group, a waste bank working group, energy conservation as well." (KA/W, Monday, May 27, 2024)*

In addition, there is also community service during scout extracurriculars, integration of hygiene aspects, sanitation, and drainage functions into learning, classroom cleanliness competitions during class meetings and commemoration of World Environment Day, and competitions in commemoration of national holidays such as murals, speeches, prose, and poems with environmental themes. Another activity is littering during school events outside. In addition, the school collaborates with various related agencies and the surrounding community to commemorate National Waste Day. The activities are cleaning the front area of the school, ensuring the smooth running of the waterways, collecting garbage from the sewers and the surrounding environment, and cleaning up garbage in the market. To overcome the flood, the school made a sluice. Schools also make regulations to support the implementation of the movement.

Self-habituation in the aspect of waste management is carried out by class pickets, plastic-free campaigns, the use of refillable printers, a circular letter from the principal about the habituation of environmentally friendly activities at SMA Negeri 2 Wates, community service during scout

extracurriculars, elegant tumbler declarations by adiwiyata cadres at the Sermo reservoir as an effort to socialize reducing plastic waste and global warming in the Kulon Progo community. The waste bank of SMA Negeri 2 Wates, the use of waste paper for mask handicrafts and other crafts in PKWU subjects, the creation of the P5 project in the theme of sustainable lifestyle, inorganic waste is also deposited to scavengers and the Village Waste Bank so that the waste bank gets income, the use of skewers, waste coir and coconut shells into crafts and orchid planting media, bringing food and beverages from home, making eco enzymes in order to reduce global warming and reduce organic waste. In addition, there is also the use of gallons of refillable drinking water in each class to reduce the pile of garbage at School, SMADA Scouting Event (SSE), Hiking, and cleaning Bugel Beach in the context of National Waste Care Day 2023. School canteens are prohibited from using plastic, and students are encouraged to bring their tumblers, lunch boxes, plates, or glasses from home. School cleanliness is always maintained through routine activities, while in the community, school residents carry out garbage gropyok actions in public places, such as Bidara, Bugel, and Mlarangan beaches.

Familiarization in the aspect of planting and maintaining trees/plants is carried out in a way that includes in the sub-fields of pharmacies and living stalls: socialization of programs to adiwiyata cadres, land preparation (planting media with polybags for growing vegetables, medicinal plants, planting media with hydroponics), maintenance of medicinal plants, labeling of plants with QR Code, harvesting of crops, and sale of crops). The results of the interview with GUR/W are as follows:

*"That is to see the function of the plant; the main thing is related to the plant, which makes the working group, yes, because now the model is digital, that is, the story, it just stays in the scan to see what the name is, what is the function, what is the Latin name and so on."* (GUR/W, Monday, May 27, 2024)

Nursery sub-fields: seedling preparation, seedling seeding, seedling watering, seedling fertilization, weeding, pest control, and seedling handover. The sub-field of school park management is the naming of classroom garden blocks, garden maintenance, watering plants every day, counting and grouping plants in schools, based on the plant census, namely 627 ornamental plants, 92 shade plants, 298 medicinal plants, 154 vegetables, 63 fruit, seven typical plants and a total of 1,241 plants, tree planting actions in the context of the School's 41st Anniversary and world habitat day at Bidara Beach. Community service planting ornamental plants in the school environment to reduce global warming and preserve plant biodiversity.

The implementation of tree planting in schools is carried out during the School Environment Introduction Period, and cleanliness competitions are between classes. Each class has a sansevieria to absorb the impact of electricity use. Planting is also carried out during Clean Friday. In addition, at special events, such as Earth Day, Million Trees Day, or school birthdays, involving scout children with locations outside schools, such as on Mlarangan Beach, Bidara Beach, and Bugel Beach, by procuring trees in collaboration with outside parties, one of which is a nursery center in Wonosari. In addition, there is also the planting of ornamental plants by involving student guardians. The School uses eco enzymes for plant care. Plant maintenance during the dry season is more complex, especially for rhizome-rooted plants, and it involves all school residents. Plants in schools are also labeled with a QR Code made by the Working Group on Planting and Maintaining Trees/Plants that provide information about the plants. However, not all trees have QR Codes because many plants have died during the dry season.

Getting used to water conservation is carried out with faucets always checked, ablution using enough water, wastewater from air conditioners used to clean non-electronic equipment, window glass, School doors, and watering plants. Rainwater Harvesting Installation Water is used to water plants and raise local fish; water from the ablution place flows into the fish pond. Water-saving stickers are pasted on the bathroom; in the sink, there is an appeal that no garbage should enter the sink and water installation repairs. Implementation of water conservation is carried out every day and is coordinated on Clean Friday.

Getting used to the aspect of energy conservation is carried out by using automatic plant watering equipment in greenhouses, the use of renewable energy sources in the form of solar cells to save energy and drain water in hydroponics, the use of energy-saving equipment such as LED lights, and energy-saving LED TVs, in school libraries, the use of environmentally friendly fuels in electric motors, and the maintenance of electrical equipment such as fans. The results of the interview with KET1/AD/W are as follows:

*"The same. Yes, if the day the lesson is over, he continues to turn off the electricity and the fan, which is routine". (KET1/AD/W, Monday, May 27, 2024)*

In addition, there are LCD projectors, power outlets, PC components, subject practices, engine off day, engine off day campaigns through Instagram, utilizing sunlight in room lighting, regulating air conditioning temperatures at 24 °C-26 °C, and energy conservation practices by using fruit in scout extracurriculars.

Getting used to the innovation aspect related to Environmentally Friendly Behavior is carried out by developing and preserving rare trees and protecting animal habitats, especially birds. The SchoolSchool collaborated with the Wanapaksi Forest Farmers Group to adopt the nest of the Kehicap Ranting bird (*Hypothymis azure*); aloe vera plants were developed into various products such as soap, drinks and chips, using automatic plant watering devices in the greenhouse, the use of renewable energy sources in the form of solar cells to save energy and drain water in hydroponics, a fashion show made from waste in order to reduce plastic waste and waste paper and building the creative spirit of students in the 2023 Anniversary of SMA Negeri 2 Wates, a fashion show of recycled clothes by adiwiyata cadres in commemoration of World Environment Day at the 2024 Adikarta Kulon Progo Building, the manufacture of eco enzymes and eco enzyme derivative products). In addition, the manufacture of room and bathroom fragrances made from natural herbs, the adoption of bird's nests and the provision of bird needs such as drinking water, oyster mushroom cultivation, hydroponics and aquaponics, education and socialization about freshwater fish and their conservation efforts by SFF EDU Freshwater Fish Museum Yogyakarta, the dissemination of local freshwater fish fry in Kulon Progo, namely Wader Cakul fish, and the use of Rainwater Harvesting Installations to raise local freshwater fish and bottle houses. The school committee uses WhatsApp group media to communicate with students' parents about implementing these behaviors' habituation.

Overall, implementing learning in all subjects, extracurricular activities, and self-familiarization regarding environmentally friendly behavior involves all school members, the school committee, parents/guardians of students, and external parties.

### **Implementation of Environmentally Friendly Behavior for the Community Around the School and/or in the Region**

The implementation of environmentally friendly behavior, especially around schools, involves involving the collaboration of school residents and the community in various activities, such as the adoption of bird's nests, tumbler campaigns, environmental service to clean the surrounding area, the provision of eco enzymes, garbage combing actions, elegant tumbler declarations, Earth Festivals, stocking wader fish seeds, and socializing environmental love. The results of the interview with KET1/AD/W are as follows:

*"I repeat that for the cleanliness of the sewer, we collaborated with the community, and those who planted trees outside were also included in the environmental action. Then our eco enzyme has been in the Sermo reservoir, then once in the river near Daendels road for environmental action. ". (KET1/AD/W, Monday, May 27, 2024)*

This activity is carried out with various parties, including the sector police, military rayon command, local communities, and volunteers, to support environmental conservation, community education, and plastic waste reduction.

### **Forming Work Networks and Communication**

The SchoolSchool has collaborated with various parties with MoU as formal evidence, WhatsApp groups, and photo documentation. The MoU was conducted with schools, BUMDes, DLHK DIY, Tourism Villages, Pokdarwis, forest farmer groups, private institutions, and foundations. In addition, there are activities with other schools, such as PT ASTRA, HPAI, and the Agriculture Office. The results of the interview with KET2/AD/W are as follows:

*"Then HPAI, yes, it is clear, so usually we from ASTRA get the guidance, for example, waste wise schools, or how to manage waste well, and so on, we collaborate with HPAI Kulon Progo." (KET2/AD/W, Monday, May 27, 2024)*

The school committee receives school reports regarding cooperation and provides suggestions or recommendations for cooperation opportunities with other institutions or organizations.

## **PBLHS Movement Campaigns and Publications**

The SchoolSchool carried out various activities in the framework of the PBLHS Movement campaign, namely socialization of the PBLHS Movement, environmental actions, competitions, and campaigns using social media and during MPLS. The campaign's theme is the program that the SchoolSchool will implement. Campaigns were also conducted to socialize the PBLHS Movement in schools, with various slogans about the environment in various school corners. Schools publish the movement with posters and murals, water-saving and electricity-saving stickers, exhibitions, social media, school websites, online media websites, print media, and RB TV. The results of the interview with KET2/AD/W are as follows:

*"We also cooperate with newspapers, print media, and RBTv. We have also been planting trees and newspapers; RBTv is covered there. That is our media because we have been working together for a long time with RBTv and newspapers, so for every adiwiyata activity, we usually invite them, or they cover it". (KET2/AD/W, Monday, May 27, 2024)*

In addition, the PBLHS Movement was socialized during the Introduction to the School Environment. Publication involves all parties, from teachers and students to employees, including the campaign and publication working group.

## **Forming and Empowering Adiwiyata Cadres**

The formation of adiwiyata cadres in schools involves more than 20% of students. The formation and empowerment of adiwiyata cadres are carried out by involving all students, especially the administrators of the Intra-School Student Organization and representatives of each class. Each class is appointed with a minimum of twelve cadres divided into six working groups to implement environmentally friendly behavior. Each working group has an employee teacher who accompanies them. The results of the interview with KS/W are as follows:

*"If the adiwiyata cadre team is actually within the rule of 20 percent of the number of students, but we are more than that, and each cadre working group has a teacher who is an accompanying employee. Those who can become adiwiyata cadres, in principle, all children here can become adiwiyata cadres, but then the main thing is from the student council and each class". (KS/W, Monday, May 27, 2024)*

One of the tasks of these cadres is to carry out programs made in their respective working groups. Adiwiyata cadres are empowered to participate in various school activities like Clean Friday. Cadre rotation is carried out every year so that students have the opportunity to learn various aspects of the environment. In addition to adiwiyata cadres, there are also adiwiyata ambassadors.

## **DISCUSSION**

According to Terry (2012), the implementation involves motivating members to take the initiative and work hard to achieve goals and organizing by the leadership. Implementation, as one of the aspects of the management function, has an important role in implementing the organizational plan and structure that has been established (Machali & Hamid, 2017). This implementation serves to realize the movement for environmental care and culture in schools. Regarding school culture, in line with what was stated by Salam et al. (2025), efforts to maintain school culture aim to maintain the existing culture and develop and maintain unique character traits instilled by the school.

### **Learning on subjects**

Learning in schools is integrated with applying the value of Environmentally Friendly Behavior. Teachers carry out activities according to the Learning Implementation Plan or teaching modules that have been designed and ensure that learning runs in harmony with careful planning. This is in line with what Rokhmani said (Azima & Zumna, 2022) that the development of environmental education in formal schools requires several important elements, namely educators who deliver materials and approaches about the environment to students, students as the leading center in efforts to improve understanding of the environment, and the insertion of environmental values in the character education curriculum.



## Extracurriculars

Implementing extracurricular activities in schools is one of the strategic means to integrate the values of the PBLHS Movement. Although not all activities can fully adopt the principles of Environmentally Friendly Behavior, some activities, such as scouting, have shown a real commitment through environmental actions, such as waste management and conservation. Other extracurriculars, although more limited, still support the movement's goals by implementing eco-friendly habits, such as using tumblers and personal hygiene management. This shows that a gradual approach through various extracurricular activities can strengthen the culture of caring for the environment in schools. This aligns with what Aprilianti and Suratsih (2023) explained: extracurricular activities at Adiwiyata School are integrated with activities that support environmental protection and management.

## Self-habitation

Habitation at SMA Negeri 2 Wates in Environmentally Friendly Behavior in hygiene, sanitation, and drainage functions is carried out through various activities. Clean Fridays to pick up garbage and take care of the grass in the gutters, collecting drainage materials to facilitate waterways, and community service in scout extracurricular work are clear examples of these efforts. In addition, the integration of cleanliness, sanitation, and drainage aspects is also carried out in learning and classroom cleanliness competitions during class meetings. The SchoolSchool also commemorates World Environment Day and national holidays with environment-themed competitions and garbage gropyok activities outside school events. In commemoration of National Waste Day, the school collaborates with various agencies and the surrounding community to clean up the environment, including market areas and sewers. As part of the policy, schools implemented rules such as bringing their cutlery, hygiene pickets, and eco-friendly canteen policies to support the implementation of the movement. The research results from Harahap et al. (2018) show that a clean school environment significantly influences students' clean lifestyle behavior, and teachers' behavior towards a clean lifestyle also dramatically impacts students' clean lifestyle behavior.

Implementing self-habitation in waste management has been done comprehensively through policies, routine activities, and innovative projects. The principal's policies, such as the circular letter on environmentally friendly habits, are the basis for strengthening the behavior of all school residents. The call to finish the food, reduce the use of plastic, use paper back and forth, and bring eating and drinking utensils from home shows the integration of eco-friendly principles into daily habits. The Reduce, Reuse, Recycle (3R) approach is the primary framework for implementing Environmentally Friendly Behavior. On the reduction principle, SMA Negeri 2 Wates carries out various activities, such as class pickets, plastic-free campaigns through digital media, elegant tumbler declarations, and the implementation of community service in extracurricular activities. The plastic-free canteen policy and SMADA Scouting Event (SSE) activities that combine hiking with beach cleaning are concrete steps in reducing waste and environmental education. The principle of reuse is applied through reuse, such as refillable printers, waste paper for crafts, and organic waste (skewers, coir, coconut shells), which are processed into orchid planting media and handicrafts.

In addition, using refillable water gallons in each class is a strategic step to reduce the consumption of single-use plastics. Regarding the recycling principle, the school waste bank is a motor for inorganic waste management that provides economic value. Based on the amount of waste for the January-December period of the 2023/2024 school year, data was obtained that the waste collected in one year was 63,000 kg of organic waste, 42,000 kg of plastic, and 21,000 kg of paper, so the total waste in one year was 126,000 kg. In line with Sukmawati (2021), the waste problem is not only the government's responsibility but also of all levels of society. Community leaders who care about the environment have initiated various waste management initiatives. Waste management is carried out by applying three principles: reduce, reuse, and recycle. Waste that cannot be recycled is further processed through cooperation with scavengers and Village Waste Banks. The initiative to make eco enzymes from organic waste is also a form of environmental adaptation that supports waste reduction and global warming mitigation. This habit not only has an impact on the school environment but also extends to the community. The garbage gropyok action involving students, teachers,

and the community in public locations such as Bugel, Bidara, and Mlarangan beaches shows effective cross-community collaboration. Thus, implementing Eco-Friendly Behavior at SMA Negeri 2 Wates proves that consistent, simple habits supported by policies and innovation can create a sustainable, eco-friendly culture. This aligns with what Purna explained (Sukmawati, 2021): that the waste problem is a shared responsibility. Waste management is carried out by applying the 3R principle.

Getting used to planting and maintaining trees/plants involves various activities that support environmental awareness. The socialization of the program was carried out by the sub-field of pharmacies and live stalls to Adiwiyata cadres, which aims to foster students' concern for the surrounding environment. In addition, schools use planting media such as polybags to grow vegetables and medicinal plants, as well as hydroponics as an alternative method. This is in line with the explanation from Sriyati and Hidayat (Aini et al., 2022) that toga plants planted in the school environment are one of the biodiversity learning media. The maintenance of this plant is carried out by labeling the plants with QR Codes, making it easier for school residents to access information related to the types and benefits of the plants. The results of this crop maintenance are then harvested and sold, providing economic benefits while raising awareness of the importance of environmental sustainability. The SchoolSchool not only creates a greener environment but also integrates sustainability principles into the daily lives of school residents.

The nursery sub-sector has a significant role in ensuring this program's sustainability, from preparing seedbeds, seeding, watering, and fertilizing to weed and pest control. The results of this nursery are then handed over to those who need or are used for reforestation activities in schools and the surrounding environment. In addition, the school park management sub-field focuses on maintaining and managing the school environment to keep it organized and support student learning. This activity includes naming class garden blocks, watering plants daily, maintaining the garden, and counting and grouping plants by type. This activity aims to maintain the school's beauty and educate students about the importance of order and environmental care. Various tree-planting programs are also carried out to encourage student awareness about the importance of greening and biodiversity conservation. One is the tree planting action carried out at unique moments, such as the school's 41st Anniversary and World Habitat Day, which was held at Bidara Beach, Kulon Progo. In addition, the SchoolSchool also involves all students and teachers in planting ornamental plants in the school environment through community service activities.

Tree planting activities are limited to the school environment and extended outside the school, for example, at Mlarangan Beach, Bidara Beach, and Bugel Beach. In this activity, scout students, guardians, and the surrounding community were also involved. To support the sustainability of these activities, the school collaborates with external parties, such as the nursery center in Wonosari, to procure tree seedlings. These efforts enrich the environment and provide students with hands-on experience protecting and preserving nature. This program aligns with Saputra's views (Aini et al., 2022), which state that planting and caring for plants is an effective activity in shaping environmental care behavior in students.

Plant maintenance in schools involves gardeners, cleaning services, employees, students, teachers, and principals in each of their rooms. However, during the clean Friday, the plant working group is also involved in maintenance. The SchoolSchool uses eco enzymes made by the compost sub-field and eco enzymes for plant care. Plant maintenance in the dry season is more complex, especially for rhizome-rooted plants, and its care involves all school residents. Plants in schools are also labeled with a QR Code made by the tree/plant planting and maintenance working group. This QR Code serves to provide information about the plant. This is in line with Hadi et al. (2022) that using QR Codes can include the identity of plant identification, such as divisions, orders, families, genera, and species.

Familiarity with water conservation is achieved by checking faucets to prevent leaks, utilizing AC wastewater for non-electronic purposes, watering plants, and flowing ablution water into fish ponds. Water-saving education is applied through stickers in bathrooms and appeals in sinks. In addition, repairs were made to Rainwater Harvesting installations to water plants, raise local fish, and support the creation of biopores to absorb water into the soil. Biopore infiltration holes are an environmentally friendly alternative for flood control (Dahliaty et al., 2019). The implementation of water conservation is carried out every day and for coordination on clean Fridays.

Getting used to energy conservation is carried out by using automatic plant watering equipment in the greenhouse, using renewable energy sources in the form of sunlight (solar cells) to save energy, and draining water in hydroponics. Nassar and Salem (2023) explain that solar power generation involves converting solar energy into electricity. In addition, the use of energy-saving equipment, such as LED lights and energy-saving LED TVs, in school libraries. Palacios-Intriago et al. (2024) explain that LED lights positively impact energy savings in the home environment. In addition, the use of environmentally friendly fuel on electric motorcycles, maintenance of electrical equipment such as fans, LCD projectors, power outlets, and PC components, practices in subjects, engine off day, namely a program from the SchoolSchool in the form of a regulation to turn off the motorcycle engine behind the school gate, then school residents get off the motorcycle and lead to the front of the parking building, After that, it is only turned back on right on the ramp of the parking building, and if you are asked to reduce the speed by car to 5 km/h. This aims to reduce air pollution from motor vehicle emissions in the SMA Negeri 2 Wates environment. This engine off day is implemented every Wednesday from 06.00-08.00 WIB without exception for all residents of SMA Negeri 2 Wates. Other activities are an engine off-day campaign through Instagram, utilizing sunlight in room lighting, regulating the air conditioner's temperature at 24 C-26 C, and energy conservation practices by using fruit in scout extracurriculars. The purpose of these various energy conservation efforts is not only to reduce costs from the use of electricity but also as a means to implement PRLH. This is in line with what was stated by Bahij et al. (Aini et al., 2022), which states that energy savings are intended to reduce electricity and water costs and shape behaviors that arise from consciousness and become habits.

Getting used to the innovation aspects related to PRLH is carried out by developing and preserving rare trees and protecting animal habitats, especially birds. The SchoolSchool collaborated with Forest Farmers Group Wanapaksi to adopt the Kehicap Ranting bird nest. This is in line with what Birowo explained (Joharsoyo, 2023): Protecting and preserving birds is important to maintaining the balance of the ecosystem.

The school's environmental innovation program includes various creative and environmentally friendly activities. Aloe vera is processed into products such as soap, beverages, and chips, while automatic plant watering is applied in the greenhouse for efficiency. Renewable energy from solar cells is used for hydroponics, reducing energy consumption. The recycled fashion show utilizes plastic and paper waste, fosters students' creativity, and is held in commemoration of the School's Anniversary and World Environment Day. Other innovations include the manufacture of eco enzymes, herbal fragrances, oyster mushroom cultivation, hydroponics, aquaponics, and education on freshwater fish conservation by SFF EDU Freshwater Fish Museum Yogyakarta. In addition, the Rainwater Harvesting Installation is used to maintain Wader Cakul fish and support the conservation of local species. This effort shows the integration between education, creativity, and environmental preservation in schools.

Overall, self-habituating implementation involves all school residents who are adjusted to their respective working groups and involves institutions and communities outside the school for environmental action and other cooperation. Septiana et al. (2018) explained that schools act as educational institutions and community services, so achieving educational goals requires cooperation between the principal, teachers, education personnel, parents, school committees, and the surrounding community. Involving the community in development in the field of education can be done by participating, including in its implementation (Habibi, & Anita, 2024). Regarding environmental education, Paparang (2017) explained that implementing environmental education in schools must involve all elements of the school and the school community.

### **Implementation of Environmentally Friendly Behavior for the Community Around the School and/or in The Region**

Implementing environmentally friendly behavior, especially around schools, involves various collaborative activities between school residents and the community. These activities include the adoption of bird's nests in Jatimulyo, a campaign to use tumblers in the Sermo Reservoir, environmental service to clean sewers and Jalan Wahid Hasyim in collaboration with the sector police, military rayon command, the General Election Commission, and Kapanewon Wates, as well as spraying and administering eco enzymes at

the Cikli Temon Market. Other activities include combing garbage at the Dam Market, declaring an elegant tumbler, providing eco enzymes, gropyok garbage, and sorting waste at the Sermo Reservoir on Environment Day 2023. The SchoolSchool also participated in the Earth Festival at Malioboro Mall 2024, stocking wader caku fish in the Carikan River, cleaning up waste at the Dam Market, socialization, and making eco enzymes in Hargowilis Village, as well as an engine off-day campaign. In addition, there are SMADA Scouting Event (SSE) activities in the form of hiking and cleaning Bugel Beach in the context of the 2023 National Waste Care Day, environmental socialization, and eco enzyme making at SD Negeri 1 Sentolo, as well as eco enzyme making training by teachers. Planting 250 shrimp cypress trees at Bidara Panjatan Beach was carried out to reduce global warming and abrasion by involving the community, the sector police, and the Military Rayon Command. This aligns with Yuanita (2020), who stated that by implementing participatory-based environmental activities, the school involves the surrounding community in various activities.

### **Forming work networks and communication**

Schools, in terms of network formation and communication, have collaborated with various parties. The media used in networking cooperation and communication is with the MoU as formal evidence; besides that, there is also a WhatsApp group and photos of activities that evidence it. This partnership agreement is made to maintain trust in establishing cooperation between the school and the partner in accordance with the agreement that has been set (Rohim et al., 2020). The MoU was carried out with several parties, namely cooperation with SMA Negeri 1 Cangkringan, Village-Owned Enterprises (BUMDes) Artha Jaya Ngestiharjo Village, DLHK DIY, SMP Negeri 2 Wates target school, SMA Negeri 1 Sentolo target school, SD Negeri 1 Sentolo target school, Abubakar High School target school, SD Negeri 6 Damungan target school, Hargotirto Tourism Village (Segajih Live in & Education), Pokdarwis Pantai Bugel, Wanapaksi Forest Farmer Group in Gunung Kelir Jatimulyo Girimulyo Kulon Progo, Surya Fish Farm Education (SFF EDU) in Carikan Bumirejo Lendah Kulon Progo, Veteran Foundation in land use and Veteran Vocational School Building. In addition to the MoU, it also has a WhatsApp group. Several groups include adiwiyata coaching, waste-wise schools, and the Indonesian Adiwiyata Activist Association (HPAI). Schools also use social media by using Instagram with smada\_adiwiyata and smadawates\_official accounts.

The SchoolSchool also carried out activities that supported the PBLHS Movement, namely a mock study to SMA Negeri 3 Magetan, East Java, waste-wise school coaching from PT ASTRA Indonesia in collaboration with HPAI, a national-level adiwiyata jamboree in Baturaden, Central Java by PT ASTRA Indonesia 2023, the Adipura carnival in commemoration of World Environment Day at the Kulon Progo Regency level 2024, exhibition of the work of adiwiyata cadres of SMA Negeri 2 Wates at the Adikarta Building, Kulon Progo Regency in the context of Earth Day 2024, coordination of adiwiyata schools with the Kulon Progo Regency Agriculture Office. This is in line with what Marzuki stated (Nasriyati, 2022). In education, partnership also includes an educational strategy carried out by two or more parties within a mutually agreed period to achieve common goals with the concept of mutual need and mutual support. Regarding cooperation with other institutions, the role of the school committee is not so directly involved. The school committee is more about receiving reports from the school regarding the cooperation that has been carried out, and the school committee usually provides suggestions or recommendations for cooperation opportunities with other institutions or organizations.

### **PBLHS Movement campaigns and publications**

The Schools carries out various activities in the framework of the PBLHS Movement campaign by involving socialization, environmental actions, competitions, and the use of social media as a means of education. Socialization was intensive in the target schools, including SMP Negeri 2 Wates, SMA Negeri 1 Sentolo, SD Negeri 1 Sentolo, SMA Abubakar, and SD Negeri 6 Bendungan. The monitored environmental action activities include the Clean Friday program, education on the preservation of local freshwater fish, hiking and cleaning activities at Bugel Beach in the context of the 2023 National Waste Care Day, tree

planting at Bidara Beach, and cleaning of ditches and areas along Jalan Wahid Hasyim.

In addition, there was a declaration of an elegant tumbler, the provision of eco enzymes, waste gropyok activities, and waste sorting carried out by SMK/SMA students throughout Kulon Progo Regency, commemorating Environment Day 2023. SMA Negeri 2 Wates also participated in the 2024 Adipura Kirab and a 3D-making competition for used goods organized by the DIY Cultural Office. The Environmentally Friendly Behavior (PRLH) campaign in schools is carried out through interesting themes, such as "My Waste My Responsibility" and "Save the Earth." To reinforce the campaign message, various slogans were installed in the school environment, including "We are proud of PRLH" and "School of a Thousand Biopores," as well as other slogans placed in reading corners, toga gardens, and strategic school corners. This activity shows the school's participatory efforts in internalizing the values of environmental care for all school residents and building environmental awareness in the surrounding community. This varied and thematic campaign strategy effectively conveys PRLH's message at large. All school members prove that they are involved in the PBLHS Movement campaign, especially those related to the tasks given, namely campaign and publication working groups and other working groups according to the division of their respective tasks, and the community supports the movement. The SchoolSchool publicizes the movement using posters and murals with the theme of PRLH aspects, water-saving and electricity-saving stickers, exhibitions, social media such as YouTube, Instagram, tik tok, and Facebook, stories on WhatsApp, print media, wall magazines, school websites, online media websites, print media, and RB TV, as well as the socialization of the PBLHS Movement in the School Environment Introduction Period. This is in line with what was stated by Setiadi (Natasari, 2024), which is that social media makes it easier for individuals and groups to establish relationships without restrictions on social status and facilitates access to information for the public. Haider (Fadli & Sazali, 2023) explained that social media is effective for disseminating information and running campaigns, such as climate change issues or environmentally damaging behavior, as well as being a link between account managers and the public of platform users. The publication of the PBLHS Movement at SMA Negeri 2 Wates involves all parties, ranging from teachers and students to employees. It also involves distributing campaign and publication working groups, with materials prepared by each working group. Teachers also have a role in publicizing various PBLHS Movement activities in schools through their respective social media.

### **Forming and Empowering Adiwiyata Cadres**

The school's adiwiyata cadre team comprises more than 20% of the students. The adiwiyata cadre team, in the rules, requires 20 percent of the number of students, but in schools, there are more than that, and each working group has teachers and employees as companions. The formation and empowerment of Adiwiyata Cadres in schools are carried out by involving all students, especially student council administrators and representatives of each class. Each class is appointed with a minimum of twelve cadres who are divided into six working groups such as the hygiene working group, the sanitation and drainage function working group, the waste management working group, the tree/plant planting and maintenance working group, the water conservation working group, the energy conservation working group, and the coordinator of the innovation working group related to the implementation of PRLH. This cadre is tasked with carrying out the PBLH Movement program that has been made in their respective working groups. This is in line with what is explained by Kementerian Lingkungan Hidup dan Kehutanan (2020) that the formation of Adiwiyata cadres aims to create PRLH drivers in schools, encourage environmental culture, and involve at least 20% of students.

The overall number of cadres reaches 222 people, and the rotation of cadres every year, especially during class increases, aims to ensure that every student can learn various aspects of the environment. This rotation system means cadres understand one working group and various programs such as eco enzyme, waste bank, and compost management. The impact is increasing cadres' skills in dealing with environmental problems, starting with cleanliness, sanitation and drainage functions, waste management, planting and maintaining plants/plants, water conservation, energy conservation, and innovations related to environmentally friendly behavior. In addition to adiwiyata cadres, representatives of each class, and

student council administrators, some adiwiyata ambassadors are the result of the election. This aligns with what Arasanmi and Krishna put forward (Suleman et al., 2022): job rotation also improves employee learning and skill acquisition. It allows them better to understand the capabilities and challenges of other departments.

Based on the findings in this research, the implementation of the PBLHS Movement shows that it plays an important role in overcoming challenges related to environmental problems in schools. This implementation encourages the active participation of all school residents to protect the environment through various activities. With consistent implementation, the PBLHS Movement can improve the condition of the school environment and instill clean living habits and environmental care and culture in students. The impact on education in the future is the creation of a generation that is highly aware of the importance of protecting the environment from an early age. The PBLHS implementation model can be a reference for other schools to overcome similar environmental problems while encouraging the integration of environmental values into the school culture.

The impact on education in the future is to create a more environmentally conscious generation, with environmentally friendly behavior that not only becomes a habit but also part of students' character. This implementation model can be a reference for other schools in developing environment-based programs more effectively and sustainably.

## CONCLUSION

Based on the results of the research on the Implementation of the Environmental Care and Culture Movement in the schools, it can be concluded that the implementation of the PBLHS Movement at the national Adiwiyata school SMA Negeri 2 Wates is carried out with various concrete actions that reflect the cultivation of environmentally friendly behavior. This concrete action includes the integration of aspects of Environmentally Friendly Behavior (PRLH), namely aspects of cleanliness, sanitation and drainage functions, waste management, planting and maintenance of trees/plants, water conservation, energy conservation, and innovations related to PRLH into classroom learning, extracurriculars, and school residents' self-habitation. The SchoolSchool also implements PRLH for the community around the SchoolSchool and/or in the region through various concrete actions through community-based programs. The SchoolSchool is also active in collaborating with related parties to support sustainable environmental management. Environmental campaigns are also carried out through various concrete actions of the PBLHS Movement and published through social media and others to increase the awareness of school residents and the surrounding community. In addition, adiwiyata cadres were also formed and empowered as the driving force of the PBLHS Movement program, implementing environmentally friendly behavior and the existence of adiwiyata ambassadors.

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