

## Environmentally conscious schools through the implementation of Adiwiyata program at junior high schools in Jakarta

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**Abstract:** Environmental problems such as littering, excessive use of single-use plastics, and low participation in greening activities are still widely found in the school environment, indicating the need for more systematic and sustainable awareness-raising efforts. This study aims to evaluate the implementation of the Adiwiyata program in junior high schools in Jakarta. The research used a qualitative approach with an evaluative design of the CIPP (Context, Input, Process, Product) model. The research data were collected through in-depth interviews, observation, and documentation, involving principals, teachers, and students. The results showed that the effectiveness of the program was strongly influenced by leadership commitment, participation of all school members, and continuous evaluation practices. Context analysis showed alignment between national environmental policies and school needs. Input analysis found key resources and strategies, while process analysis highlighted collaborative implementation. Product analysis showed positive changes in students' environmentally friendly attitudes and behaviors. This study concludes that the Adiwiyata program contributes significantly to shaping environmental values and habits in schools. The practical implication is that schools that want to develop environmental education should encourage inclusive engagement and implement a structured evaluation system. The results of this study can serve as a reference for schools that want to develop environmental education.

**Keywords:** *Conscious Schools, Environmentally, Evaluation, Implementation of Adiwiyata program, Junior high school.*

### 1. Introduction

The Adiwiyata program is one of the national policies initiated by the Ministry of Environment and Forestry together with the Ministry of Education and Culture to form an environmentally friendly character and culture through the integration of environmental education into the national education system [1-3]. This program aims to encourage schools to be actively involved in sustainable environmentally sound development through various learning activities, management of the school environment, and empowerment of all school members on an ongoing basis [4, 5].

The Adiwiyata program was launched in 2006 for primary and secondary education levels as an effort to form schools that care and have an environmental culture. This program not only emphasizes the physical cleanliness of schools, but also encourages changes in the behavior of school members to be more aware and responsible for the environment through continuous learning and active participation [6]. Through this approach, schools are expected to produce a generation with high awareness and strong environmental ethics [7]. This goal is in line with the Sustainable Development Goals (SDGs) agenda, especially in the aspect of education for sustainable development which emphasizes the importance of forming an environmentally cultured society [8, 9]. Furthermore, through increasing awareness and knowledge, schools are expected to shape the character of students with environmental ethics and encourage environmentally friendly behavior consistently [10].

Although the Adiwiyata Program has been a positive effort to increase environmental awareness at the school level. However, the implementation of this program in various schools faces a number of challenges. First, there are still many school members who do not have sufficient knowledge, skills and awareness to support the success of the program [11, 12]. This is consistent with the fact that educators' strategies and competencies play an active role in developing caring and environmentally cultured characters. Second, principal leadership plays a crucial role in the implementation of Adiwiyata. Visionary and environmentally sound leadership has proven effective in driving changes in school culture towards a more environmentally conscious culture [13, 14]. Environmentally conscious principals have greater motivation to implement the Adiwiyata school program. In line with that, the influence of the principal's leadership is very large in realizing Adiwiyata schools. Third, the facilities and infrastructure supporting the program are still not optimal, such as limited waste processing facilities, green open space, and other supporting resources [12]. Fourth, an environmentally friendly culture has not been fully embedded, as seen from the lack of awareness in sorting waste, the use of disposable plastics, and littering behavior. Fifth, the program evaluation process tends to be incidental and not conducted thoroughly [15]. Sixth, coaching and supervision from related agencies is still minimal after the school receives the Adiwiyata award [16].

The results of the grand tour show that DKI Jakarta Province faces serious environmental challenges, including air pollution, non-optimal waste management, and reduced green open space. In this context, the Adiwiyata Program becomes very relevant as an educational strategy to instill the values of environmental care to the younger generation through educational institutions [17, 18]. This program aims to encourage active participation of school community in various environmental conservation efforts. In order for the Adiwiyata Program to run optimally and sustainably, a comprehensive evaluation of its implementation at the school level is needed. This evaluation is important to measure the effectiveness of program implementation, assess the achievement of objectives, and provide a basis for decision-making and policy recommendations [7, 14]. Moreover, evaluation is an important instrument to assess the extent to which schools are able to integrate environmental conservation strategies in the learning and habituation process, and form students' environmental awareness character. With environmentally friendly education and habits, schools can be a place to learn while encouraging a culture of environmental care. Therefore, the implementation and sustainability of the Adiwiyata Program in DKI Jakarta needs attention from all parties.

Evaluation of the program will provide an overview of the school's contribution to environmental conservation and help identify good practices that can be maintained and aspects that need to be improved. The evaluation also plays a role in assessing the impact of the program, measuring school performance, and developing data-based policy recommendations. Thus, a comprehensive evaluation of the Adiwiyata Program in DKI Jakarta Province is an important step in ensuring the achievement of program objectives and strengthening school strategies in shaping a sustainable environmental culture.

## 2. Objectives

This research focuses on the evaluation model of the Adiwiyata program at Junior High Schools in Jakarta with sub-focuses including *Context, Input, Process, Product* (CIPP). The results of this study are expected to assist in the development of a comprehensive evaluation framework to assess the implementation of the Adiwiyata program.

## 3. Methods

This research is a qualitative research with an evaluation method that aims to identify the strengths and weaknesses of the program, ensure that all important elements have been considered and improved, measure the extent to which program objectives have been achieved, and assist decision makers in making the necessary changes so that the program can function more effectively and sustainably. The junior high schools that are *role* models in the implementation of independent Adiwiyata schools are SMP Negeri 103 Jakarta, SMP Negeri 173 Jakarta and SMP Negeri 140

Jakarta.

This study uses the CIPP Evaluation Model, which is an evaluation model that helps ensure that programs are designed, implemented, and evaluated comprehensively and effectively. This model was chosen as a reference because it provides a comprehensive framework for evaluating each stage of the Adiwiyata program from start to finish. In addition, this model offers flexibility that allows adjustments based on the specific needs and context of the Adiwiyata program in each school, emphasizing *Context, Input, Process, Product*. The criteria used as the standard for measuring the level of achievement of the implementation of the Adiwiyata school program are the Regulation of the Minister of Environment Number P.52/MENLHK/SETJEN/KUM.1/9/2019 concerning the criteria for implementing Adiwiyata schools.

This study uses three data collection techniques, observation, interviews and documentation. To facilitate researchers in obtaining data, an instrument grid was compiled. Instrument validation in this study was carried out by expert judgment, which was carried out by experts who are experts in their fields, including promoters and co-promoters involved in the assessment process. This validation aims to ensure that the instruments used in the study are truly relevant to the research objectives. Experts will examine each item in the instrument, evaluating the clarity, appropriateness, and feasibility of the questions or statements asked.

Data collection techniques in this study are sourced from primary data and secondary data. Primary data, obtained through observations conducted by researchers by being directly involved in activities at the research location in an effort to obtain data related to the implementation of the Adiwiyata school program. Furthermore, through interviews conducted by researchers with informants to seek information related to questions contained in the focus of the research. Secondary data, data obtained through document studies, namely by collecting data in documents, archives, reports, notes related to the focus of the problem. Documentation studies are a complement to observations and interviews because the results of the study will be more complete if supported by complete documents. Documents can be obtained from reference sources, books, writings, pictures, photos and others.

To ensure the validity of the research data so that the data analysis and results can be trusted, the researcher used data triangulation techniques. Triangulation is a data check from various sources, methods and times, namely by comparing observation results with interview results, comparing interview results with documents, and comparing what people say about the research situation with what is seen directly throughout the research time in the field. In addition, the data used in this study used source triangulation techniques, namely by cross-checking the results of interviews with all informants involved in the program implementation research. The data that has been obtained in the form of qualitative data is then analyzed. The stages of data analysis in this study include data collection, data reduction, data presentation, verification or conclusions.

## 4. Results and Discussion

### 4.1. Context Components of the Adiwiyata Program

First, the results of the evaluation on the evaluated context components are related to the foundation of the program, the involvement of school community, the vision, mission, and objectives of the Adiwiyata school program. The foundation of the Adiwiyata program P.52/MENLHK/Setjen/Kum.1/9/2019 explains that schools participating in the Adiwiyata program must conduct a self-evaluation and identify potential and environmental problems in the school. This evaluation process is a very important first step in creating a green, clean and healthy school environment [15, 19, 20].

Second, the analysis of the research results shows that through a self-evaluation-based approach and identification of school potential, the challenges faced by SMPN 103 Jakarta, SMPN 173 Jakarta, and SMPN 140 Jakarta can be mapped more accurately. This helps schools develop more effective strategies to achieve the goals of the Adiwiyata program [21, 22]. The success of the program also

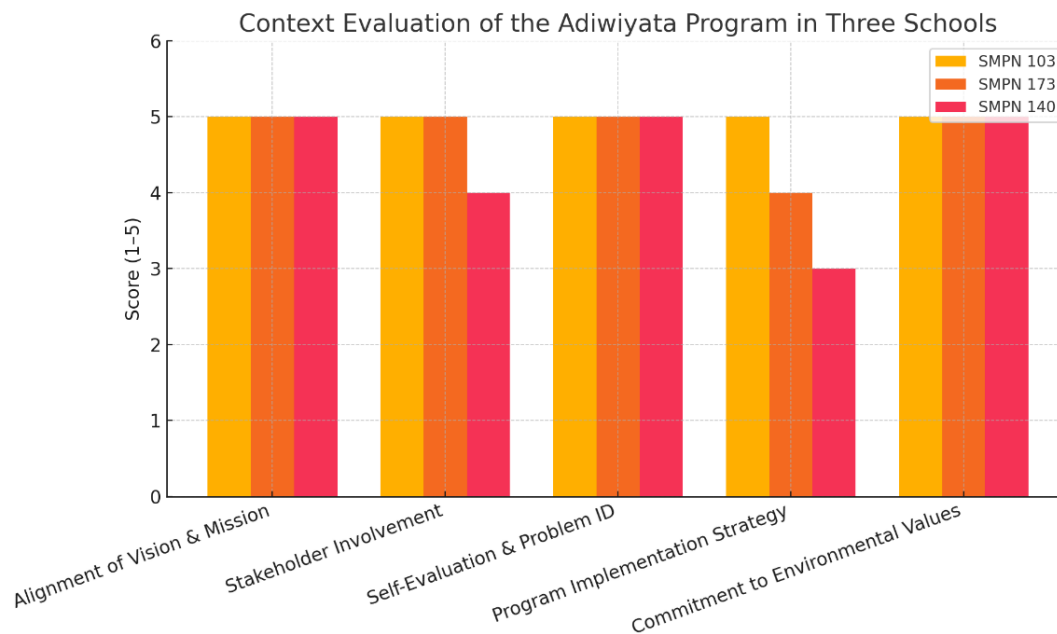
depends on the sustainability of the evaluation process, the development of data-based strategies, and the active involvement of all school members. As a result, the three schools were not only able to overcome the environmental problems faced, but also build a culture of environmental care in a sustainable manner [9, 17, 20].

Third, the Adiwiyata program in the three schools shows the active involvement of all school members in preserving the environment. This success is driven by the participation of all school elements, consistency of implementation, and regular evaluation. The meeting forum is an important coordination forum in maintaining the sustainability of the program [13, 15, 16]. The main motivation is not just to meet standards, but to instill environmental awareness as an inherent school culture [2, 8].

Fourth, the analysis of the research results shows that the vision and mission of the three schools are in line with the objectives of the Adiwiyata program, namely creating a clean and sustainable school environment and shaping the character of students who are responsible for the environment, both inside and outside the school [7, 19, 23]. This commitment not only shapes a comfortable and green learning environment, but also contributes to the development of environmental care characters in the family and community environment [18, 21, 24]. Through the Adiwiyata program, these three schools have succeeded in creating a greener, more comfortable and orderly environment, as well as forming positive habits that can contribute to sustainable environmental conservation efforts.

Clear regulations are an important factor in the success of environmental programs in schools [17]. In addition, this policy is also in line with national education goals to create students who have the character of caring for the environment [9]. Schools facing environmental problems such as waste and air pollution are more encouraged to adopt this program as a concrete solution. This is because the Adiwiyata program is able to adapt to the conditions and needs of each school, both in urban and rural areas [2, 8]. In addition, support from various parties, including local governments and surrounding communities, strengthens the implementation of this program [15, 16, 19, 23]. Schools that receive external support will find it easier to develop sustainable environmental programs. The involvement of various parties also encourages schools to be more active in maintaining the sustainability of the program, so that the impact can be felt more widely by all school members [18, 19].

The following is a bar chart of the context evaluation of the three schools:



**Figure 1.**  
Context Evaluation Adiwiyata Program.

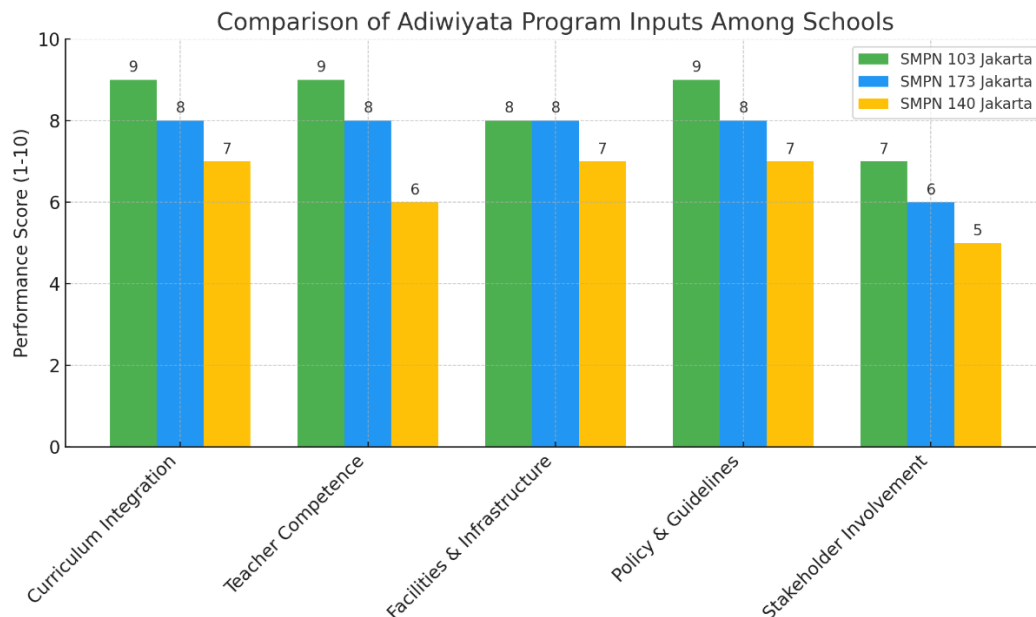
The bar chart compares the performance of the three schools based on (1) alignment of vision and mission, (2) school community involvement, (3) self-evaluation and problem identification, (4) program implementation strategies, and (5) commitment to environmental values. The visualization results show that SMPN 103 consistently has strong program integration and active participation of all school elements. In contrast, SMPN 140 shows weaknesses in school community involvement and implementation strategy, which indicates the need to build internal collaboration and strengthen the coordination mechanism of all school components.

Another key finding is the role of student participation in shaping the success of the Adiwiyata Program [13, 25]. Schools that actively involve students in green initiatives, such as waste management, tree planting, and energy conservation, tend to have a more sustainable environmental impact. When students are given the opportunity to take ownership of sustainability projects, they will develop a stronger sense of responsibility and care for the environment. However, some schools struggle to fully engage students due to a lack of interactive learning activities or support from teachers. Enhancing student-centered environmental programs and integrating sustainability topics into various subjects can further strengthen the value of Adiwiyata education [26, 27].

This evaluation emphasizes the need for continuous assessment and improvement to maintain the relevance and effectiveness of the Adiwiyata Program. While many schools have made significant progress in adopting environmentally friendly practices, periodic evaluation is essential to identify areas for further improvement. Providing clear evaluation indicators, regular feedback, and rewards for outstanding schools can motivate continuous improvement. By addressing these challenges and building on the strengths of the program, Adiwiyata can become a model for promoting environmental awareness and sustainability throughout educational institutions.

#### 4.2. Input Components of the Adiwiyata Program

The following bar chart illustrates the comparative analysis of the three main input components of the Adiwiyata Program Curriculum Integration, Human Resources Competence, and Facilities Availability at SMPN 103 Jakarta, SMPN 173 Jakarta, and SMPN 140 Jakarta.



**Figure 2.**  
Input Evaluation Adiwiyata Program.

First, the analysis of the research results shows that SMPN 103 Jakarta, SMPN 173 Jakarta, and SMPN 140 Jakarta have integrated the Environmental Care and Culture Movement at School (PBLHS) program into the Education Unit Level Curriculum (KTSP) and Learning Implementation Plan (RPP) documents. The three schools show a strong commitment to building a culture of environmental care in a systematic and sustainable manner. The integration of environmental values into the curriculum is done through a structured approach, in line with the finding that the principal's leadership plays an important role in instilling environmental morals to students through the Adiwiyata program [9]. However, there were variations in the depth of implementation in each school. SMPN 103 and SMPN 173 showed a deeper level of integration than SMPN 140, which experienced barriers due to leadership changes and staff changes. Support in the form of clear policies, continuous teacher training and the involvement of external parties were the main factors in the success of this integration. These three schools eventually became models of Adiwiyata implementation for other schools [12, 13].

Second, the analysis of the research results of the three schools shows different levels of human resource competence in implementing the Adiwiyata program. SMPN 103 Jakarta has excellent teacher resource competencies, supported by continuous training from the Environmental Agency and an effective knowledge dissemination system [3, 5]. The teachers in this school actively integrate environmental education into the daily learning process. SMPN 173 Jakarta also demonstrates good competence through regular internal and external training [19]. Meanwhile, SMPN 140 Jakarta faces challenges in maintaining the competence of its human resources due to principal and staff turnover and a decrease in training frequency. This has resulted in a decline in teachers' understanding of the Adiwiyata program, although efforts to integrate it into learning are still being made.

Third, the condition of the facilities and infrastructure at the school has met the set standards and is functioning well. Procurement and maintenance of facilities are carried out regularly to ensure the sustainability of the program. Facilities such as a canteen with a zero plastic policy, separate waste bins, and composting equipment have been optimally utilized by the school community [28]. Although there are still some individuals who need to be reminded continuously, consistent



socialization efforts, including briefings in the morning assembly by the principal, play an important role in forming positive habits in the school environment [29]. More than 90% of the school community actively utilizes the available facilities to support various Adiwiyata activities, such as planting and caring for plants, waste management, and routine cleaning activities such as ant operations. The sustainability of this program is strengthened by the culture of reminding each other among school members.

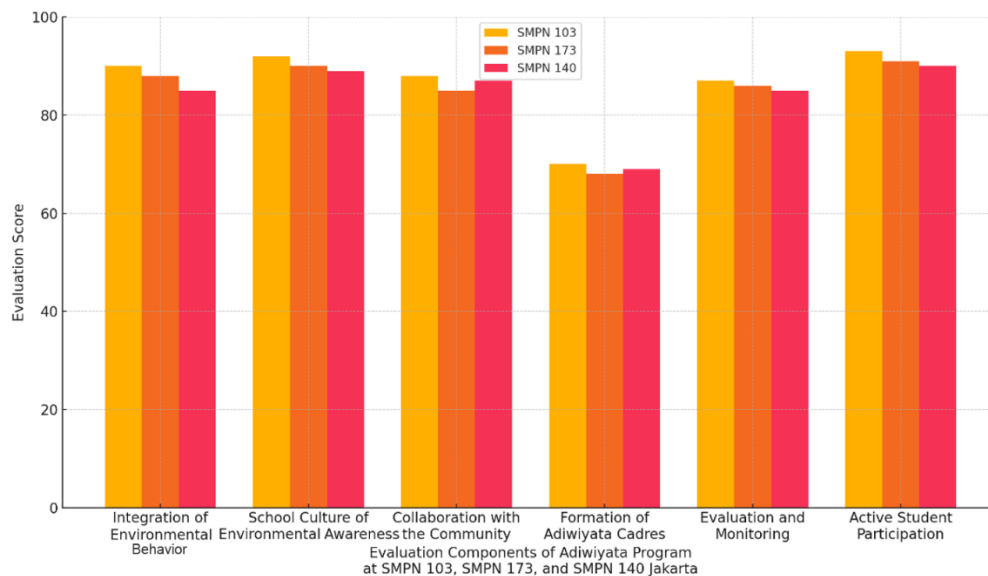
The Adiwiyata program shows some key strengths and areas for improvement. One strength is the availability of supporting policies and guidelines that help schools implement the program effectively [9, 12, 30]. Many schools have adopted environmental policies and action plans aligned with Adiwiyata goals, ensuring a structured approach to sustainability education [31]. In addition, the presence of teachers and school staff who are trained and committed to environmental education also contributes to the successful implementation of the program [25].

However, the evaluation also highlighted some challenges in terms of resource availability and stakeholder engagement. Some schools faced difficulties in obtaining sufficient funds and materials to support program sustainability [22, 27]. Limited access to green infrastructure, such as waste management facilities and green open spaces, hindered progress. In addition, although teachers and staff play an important role, the involvement of students, parents and the local community is still inconsistent, thus affecting the overall impact of the program [26, 29].

Based on the evaluation results, several recommendations can be made. Schools should seek stronger collaboration with local governments, companies, and environmental organizations to gain additional resources and expertise [9, 32]. Increasing awareness and involvement among students and the community through interactive programs, workshops, and campaigns can also increase participation [23]. By addressing these input-related challenges, the Adiwiyata program can achieve its goal of fostering environmentally conscious schools and communities more effectively [25].

#### 4.3. Process Components of the Adiwiyata Program

First, the analysis of the research results of SMPN 103 Jakarta, SMPN 173 Jakarta and SMPN 140 Jakarta have integrated.



**Figure 3.**  
Process Component Evaluation.

First, the results showed that the three schools, namely SMPN 103 Jakarta, SMPN 173 Jakarta, and SMPN 140 Jakarta, have successfully integrated Environmentally Friendly Behavior (EBM) in various aspects of school life, both through classroom learning and daily activities. This is in line with the findings that environmental education in Indonesia develops through various school-based approaches [22]. The Adiwiyata program contributes significantly to improving students' environmental literacy [33]. The active involvement of all school members in environmental activities shows that a participation-based approach is very effective in strengthening students' environmental care character, as recommended in previous studies [29]. The Active Student Participation component, which obtained the highest score, shows that students play an active role as agents of change at school.

Second, the Adiwiyata program has evolved into part of the school culture and expanded its impact through collaboration with the community and external parties. This collaboration is crucial in strengthening the effectiveness and sustainability of the program, in line with the finding that collaboration is the key to successful environmental management in developing countries [34, 35]. With the synergy between the school, community, and related institutions, the Adiwiyata Program will not only have an impact on the school environment, but also on the surrounding community.

Third, although student involvement is quite high, the Formation of Adiwiyata Cadres component shows the lowest evaluation results. This indicates the need for more systematic efforts in the formation of environmental cadres. Adiwiyata cadres, consisting of students, teachers, and staff, play an important role as agents of change to maintain, develop, and educate school members about the importance of environmental conservation [32]. Without a strong cadre, the sustainability of the Adiwiyata program is difficult to maintain through regular activities. In addition, the sustainability of the Adiwiyata program is also strengthened through ongoing collaboration with communities, government agencies, and environmental organizations [34]. This collaborative approach ensures that Adiwiyata does not become an internal program alone, but expands into a collective movement that has a wide impact [36].

Regular evaluation and monitoring are also important factors in maintaining the effectiveness of the Adiwiyata program. Schools that have achieved Adiwiyata Mandiri status need to conduct regular assessments to identify areas for improvement [37, 38]. Through continuous evaluation, schools can adapt to new challenges and ensure program linkages with national and global sustainability goals. Finally, the active involvement of students in the program serves as a powerful catalyst in environmental education. The students not only participate in activities, but also contribute as leaders in recycling projects, environmental campaigns, and various other initiatives [39, 40]. Student innovation and enthusiasm help keep the Adiwiyata program dynamic and relevant over time. Overall, the success of the Adiwiyata program in the three schools was influenced by the integration of environmentally friendly behavior in the school culture, cross-sectoral collaboration, strengthening Adiwiyata cadres, and active involvement of students.

The sustainability of the Adiwiyata program is strengthened through collaboration with various stakeholders, including local communities, government agencies, and environmental organizations [9, 22]. This collaborative approach ensures that the program is not only an internal school initiative, but also a broader movement that benefits the surrounding community. By fostering partnerships, schools can access more resources, share best practices, and create a broader impact beyond their location. This finding emphasizes that the success of the Adiwiyata program depends not only on the school's internal efforts, but also on continuous support and cooperation from external parties.

An important factor in maintaining the effectiveness of the Adiwiyata program is the presence of Adiwiyata Cadres [13]. These cadres, consisting of students, teachers, and staff, play an important role in promoting and maintaining a culture of environmental awareness in schools. As agents of change, they are actively involved in environmental conservation efforts, including waste management, greening, and awareness campaigns. Their leadership ensures that the program does not become a mere administrative requirement, but develops into a culture that is deeply rooted in the daily life of the school. Through their commitment, Adiwiyata schools continue to develop as sustainable and environmentally responsible institutions [25, 29].



Continuous evaluation and monitoring of the Adiwiyata program is essential to ensure its long-term success and relevance [7, 27]. Schools that have achieved Adiwiyata Mandiri status, or Adiwiyata Mandiri, demonstrate the importance of regular assessment in identifying areas for improvement and recognizing achievements. This ongoing process not only helps refine program implementation, but also highlights best practices that can be shared throughout the school. By integrating feedback from various stakeholders, schools can adapt to the challenges of a changing environment and keep the program aligned with national and global sustainability goals. This iterative evaluation process is critical in fostering a culture of continuous improvement and ensuring that the Adiwiyata program remains an impactful and transformative educational tool. Student involvement in the Adiwiyata program has been shown to be a powerful catalyst for environmental education [41]. Students are not only participants, but also key drivers of change within their school communities. Through their role in various initiatives, such as leading recycling projects, organizing environmental workshops, and taking part in green campaigns, students contribute to creating a lasting impact [26]. Their enthusiasm and innovation help ensure the Adiwiyata program remains dynamic and relevant [20]. This hands-on approach empowers students to take ownership of their learning and become proactive environmental stewards, extending their influence beyond the classroom to their families and local communities.

#### *4.4. Product Component of the Adiwiyata Program*

First,, the results of research at SMPN 103 Jakarta, SMPN 173 Jakarta, and SMPN 140 Jakarta show that the three schools have succeeded in building a school culture that focuses on caring for the environment. This is reflected in the real physical changes in the school environment, active involvement of teachers and students in various environmental activities [42] as well as daily habits that support a culture of environmental care. school community participation in the Adiwiyata program is able to strengthen environment-based character education [29]. In addition, the implementation of Adiwiyata is able to strengthen students' character values in protecting the environment through real activities in school [35].

Second, the Adiwiyata program has had a major positive impact on the cleanliness, beauty and comfort of the school environment. The Adiwiyata program proves that through a sustainable approach based on school culture, positive behavioral changes towards the environment can be realized and maintained in the long term. The culture of environmental care that is formed not only creates a clean and comfortable school environment, but also instills sustainability values that are internalized by all school members [26]. This program has succeeded in building a more environmentally friendly school ecosystem, with the active role of students, teachers, and all elements of the school that support environmental sustainability as a whole.

Third, the impact of the implementation of environment-based school culture is reflected in changes in the behavior of school members. Students' awareness of cleanliness increases, as seen from the increasing number of students who throw garbage in its place, take care of plants, and actively participate in greening. This is in line with the findings stating that high environmental awareness has a direct impact on students' real practices, [43].

Teachers and education personnel are also increasingly active in Adiwiyata activities, becoming positive role models for students, as explained that teacher involvement in environmental programs strengthens changes in student attitudes and behavior towards environmental conservation [33, 44].

The Adiwiyata program has made a significant contribution in improving the cleanliness, beauty, and comfort of the school environment [31]. By adopting a sustainable approach rooted in school culture, the program has successfully encouraged sustainable behavioral change towards environmental conservation. The program not only ensures a well-maintained school environment but also instills the values of sustainability to the entire school community. With the active participation of students, teachers, and school staff, the Adiwiyata Program has built a more environmentally friendly school ecosystem where environmental awareness becomes a fundamental part of the school's identity [31, 32].

The impact of an environment-based school culture is also reflected in changes in the behavior of

school members [37]. Students show greater awareness of environmental cleanliness by disposing of garbage in its place, caring for plants in the school environment, and actively participating in greening initiatives [34, 43, 45]. Teachers and school staff also show a higher commitment to environmental conservation by engaging in Adiwiyata activities and becoming role models for students. These behavioral transformations demonstrate the program's success in fostering a long-term culture of environmental responsibility, ensuring that sustainability principles continue to thrive in the school community.

## 5. Conclusion

The implementation of zero waste principles, effective waste management, and routine activities that integrate environmental values are models that can be used as references in environmental conservation efforts in other educational institutions. In addition, the results of this study underline the importance of long-term commitment and the active role of all school components in maintaining the sustainability of the program. The real physical changes and cultural transformations that occurred in the three schools are evidence that the integration of environmental values in the curriculum and daily activities has a significant impact on creating a healthy and sustainable learning environment. This study shows that schools that systematically implement EDS and IPMLH are able to develop more effective strategies in implementing the Adiwiyata program. Schools can use the results of this evaluation to design programs that are more appropriate to the challenges they face and adjust their internal policies. In addition, the success of the program in these three schools can be a model for other schools in implementing the Adiwiyata program more systematically and sustainably. Before schools implement the Adiwiyata program or carry out program sustainability, they must carry out EDS and IPMLH in a structured manner, where the results of EDS and IPMLH are not only used as reports, but also as a basis for formulating environmental program development strategies that are more responsive to the dynamics of school conditions. This effort must be accompanied by routine training for teachers and increased active participation of students, so that the environmental policies and activities implemented are always relevant and adaptive to change. Thus, schools can not only overcome existing environmental problems, but are also able to foster character and collective identity that supports long-term environmental sustainability.

## Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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