


Management of Natural Resource Utilization in Realizing Adiwiyata Schools

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ABSTRACT

This study aims to describe and analyze the management of natural resource utilization in realizing Adiwiyata Schools at SD Negeri Tunggalpager, Mojokerto Regency. The research used a qualitative approach focusing on planning, implementation, and evaluation processes. Data were collected through in-depth interviews, observations, and documentation involving the principal, teachers, students, and school documents. Data analysis applied the interactive model of Miles, Huberman, and Saldaña, including data condensation, data display, and conclusion drawing, while validity was ensured through source, time, and technique triangulation. The findings indicate that natural resource management has been integrated with Adiwiyata principles through environmental activities such as waste management, school gardening, efficient resource use, and environmentally friendly canteen practices. Program planning was conducted participatively, implementation emphasized practice-based learning, and evaluation was carried out continuously. Supporting factors include strong leadership commitment and active participation of the school community, while obstacles relate to limited facilities, funding, and time. The study concludes that systematic and collaborative management of natural resources effectively supports the realization of Adiwiyata Schools.

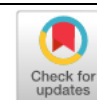
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INTRODUCTION

Educational institutions in essence not only function as a place for knowledge transfer, but also as a space for the formation of students' character and social awareness of the surrounding environment. Schools as a social system have various potential resources, both human resources, infrastructure, and natural resources (SDA) in the internal and external environment of the school. If these natural resources are managed appropriately and sustainably, they not only play a role in supporting the learning process, but can also be a contextual learning medium that encourages students to learn directly through real experiences. A green, clean, and organized school environment can foster the value of environmental awareness, social responsibility, and creativity of students in utilizing the potential of nature productively and educationally.

In the global context, attention to environmental and sustainability issues is growing as the impact of climate change, ecosystem damage, and uncontrolled exploitation of natural resources increases. The United Nations through the Sustainable Development Goals (SDGs) places education and the environment as two important aspects of sustainable development. The fourth goal of the SDGs emphasizes the importance of quality education that is able to form knowledgeable, characterful, and competitive individuals, while the thirteenth and fifteenth goals highlight action on climate change and the protection of terrestrial ecosystems (Life on Land). The integration of sustainability values in the world of education is the main strategy to build a generation that has ecological awareness and the ability to think critically about environmental issues. Thus, schools play a role not only as academic institutions, but also as agents of social and environmental change.

At the national level, commitment to environmental education in Indonesia is realized through various government policies, one of which is the Adiwiyata School Program initiated by the Ministry of Environment and Forestry in collaboration with the Ministry of Education. The Adiwiyata program aims to form schools that care about the environment and have an environmental culture through environmentally friendly school governance, the implementation of an environment-based curriculum, the management of environmentally friendly supporting facilities, and the active participation of all school residents. The program emphasizes the importance of structured and sustainable school management in harnessing the potential of the school environment as an integral part of the educational process. Schools that apply the Adiwiyata concept are expected to be able to create a learning ecosystem that is not only oriented towards academic achievement, but also on the formation of character of caring for the environment and sustainable living behavior.

Management in the context of education has a strategic role in optimizing all available resources, including natural resources. Management can be understood as the process of planning, organizing, directing, and controlling various organizational resources to achieve goals effectively and efficiently (Fauzi, 2020). In the school environment, management is not only related to the management of administration and academic activities, but also includes the management of the physical environment of the school as part of a holistic education system. The use of natural resources such as school land, parks, gardens, water sources, and green open spaces can be used as a means of learning across subjects, ranging from natural and social sciences, to character education and entrepreneurship. Therefore, the success of the implementation of environment-based schools is highly dependent on the ability of school management to design, implement, and evaluate natural resource utilization programs in a systematic and sustainable manner.

However, the reality in various educational institutions shows that the management and utilization of natural resources in the school environment still faces various challenges. Problems that often arise include the lack of optimal planning for the use of school land, the lack of innovation in making the environment a learning resource, and the limited capacity of teachers to integrate environment-based learning into the curriculum. Not a few schools have vacant land or adequate environmental potential, but have not been utilized optimally for educational and productive activities. Learning still tends to be theoretical and lacks direct experience to students in understanding the importance of environmental conservation. This condition shows that the existence of natural resources in the school environment has not been fully managed through a planned and sustainable managerial approach.

A number of previous studies have discussed natural resource and environmental management from various perspectives. Handayani (2020) in his research highlighted the obstacles to natural resource management in Indonesia which are influenced by weak coordination between institutions and suboptimal implementation of environmental policies. Purba et al. (2024) emphasized the importance of local community participation in natural resource management as an effort to maintain a balance between economic needs and environmental sustainability through an approach based on local wisdom. Meanwhile, Wahdi et al. (2025) revealed that the lack of integration between formal education and environment-based entrepreneurship training in educational institutions is an obstacle in the development of the potential of their resources. These studies show that natural resource management requires a collaborative, innovative, and integrated approach to be able to have a sustainable impact.

However, most previous research has focused more on natural resource management in the context of the general public, the industrial sector, or educational institutions in general without highlighting the specific managerial aspects of natural resource utilization at the elementary school level within the framework of the Adiwiyata program. Studies that integrate the concept of education management with the use of natural resources as a strategy to realize environmentally cultured schools are still relatively limited. This research gap is the important basis for conducting this research, namely the need for a more in-depth study of how the process of planning, organizing, implementing, and evaluating the management of

natural resource utilization in the school environment can contribute significantly to realizing the Adiwiyata School.

Based on this description, this study aims to analyze and describe the management of natural resource utilization in the school environment in realizing Adiwiyata School, which includes aspects of program planning, resource organization, implementation of environment-based activities, and program evaluation and sustainability. This research is expected to make a theoretical contribution to the development of environment-based education management studies, as well as practical contributions for schools, teachers, and policy makers in designing effective, efficient, and sustainable natural resource management strategies to form a school culture that cares and is environmentally friendly.

METHOD

This research uses a qualitative approach with a case study type. This approach was chosen to understand in depth the management process of natural resource utilization (SDA) in realizing Adiwiyata School in elementary schools. Case studies are used because research focuses on a single location intensively and contextually.

The research was carried out at Tunggalpager State Elementary School, Mojokerto Regency, East Java. The reason for choosing the location is because the school has an environmentally-based education vision, has the potential of natural resources such as land and water sources, and has implemented environmental programs such as planting plants and recycling waste that are relevant to the research focus.

The subjects of the study include school principals, teachers, and students. The selection of informants uses purposive sampling with the following criteria: (1) directly involved in school environment programs, (2) understanding policies or activities for the use of natural resources, and (3) willing to provide information openly.

The type of data used is qualitative data in the form of words, behavior, and documents. Data collection techniques include observation, semi-structured interviews, and documentation. Observations were made on the condition of the school environment and natural resource utilization activities. The interview focuses on management strategies, forms of activities, and division of tasks. Documentation is in the form of activity plans, program reports, and activity photos.

Data analysis uses the interactive model Miles, Huberman, and Saldana which includes data condensation, data presentation, and conclusion drawn. Data validity tests are carried out through triangulation of sources, techniques, and time as well as member checks to ensure the suitability of information with informants.

FINDINGS AND DISCUSSIONS

Findings

Planning the Utilization of Natural Resources in Realizing Adiwiyata Schools

Environmentally-based Natural Resource Utilization Planning at SDN Tunggalpager reflects the implementation of environmentally sound school policies, which are integrated into the environment-based curriculum through the strengthening of contextual learning, school projects, and extracurricular activities. This program is designed to foster the entrepreneurial spirit of students while forming a character of caring for the environment, independent, creative, and responsible as part of achieving the goals of Adiwiyata School. This is in accordance with what was conveyed by Mrs. Meita Siti Hasanah, as the Principal of SD Negeri Tunggalpager, Mojokerto Regency. Based on the results of the interview with the Principal.

“... In my opinion, the planning for the use of environment-based natural resources is motivated by the need for schools to foster an entrepreneurial spirit from an early age that is in line with the values of environmental concern. The school realizes that as a school that is committed to the Adiwiyata Program, as evidenced by the achievement of 2nd place at the

district level, it is necessary to have a learning program that is not only oriented to the academic aspect, but also the formation of a character of caring for the environment, independent, creative, and responsible. The use of natural resources is designed as a means of contextual learning that integrates the utilization of the potential of the school environment, such as waste management, the use of school gardens, and the processing of environmental products into products of use value. Thus, entrepreneurial activities are seen as able to support the achievement of the goals of the Adiwiyata School in a sustainable manner." (SDNT. W.KS. PERMNPJPKSA.5-01-2026:1).

Implementation of Natural Resources Utilization in Realizing Adiwiyata Schools in Tunggalpager State Elementary School

The use of Natural Resources at SD Negeri Tunggalpager is carried out programmatically with reference to the Adiwiyata assessment component, especially the implementation of an environment-based curriculum and participatory activities of school residents. Entrepreneurial activities are integrated into the learning process, school projects, and involve students directly in the school environment by utilizing natural resources and managing the environment wisely. The implementation of the program is adjusted to the class level and the ability of the students, so that all students can be actively involved in activities that foster an attitude of environmental care, responsibility, and independence. The implementation of this environment-based Natural Resources Utilization is one of the supporting factors for the success of SD Negeri Tunggalpager in achieving the achievement of being ranked 2nd in the district level Adiwiyata School, because it reflects the integration between learning, active participation of school residents, and the cultivation of environmentally friendly behavior. This is in accordance with what was conveyed by Mrs. Meita Siti Hasanah as the Principal of Tunggalpager State Elementary School, Mojokerto Regency. The following is based on the results of the interview with the principal.

"... The implementation of Natural Resources Utilization at SDN Tunggalpager is carried out in a planned and sustainable manner. Entrepreneurial activities are integrated into the learning process, school projects, and hands-on practical activities in the school environment. The implementation of the program is adjusted to the class level and the ability of students, so that all students can be actively involved. This implementation is one of the supporting factors for the success of SDN Tunggalpager in achieving the achievement of 2nd place in the district level Adiwiyata School." (SDNT. W.KS.05-01-2026).

Evaluation of the Utilization of Natural Resources in Realizing the Adiwiyata School of SD Negeri Mejoyo

Evaluation of Natural Resource Utilization is an important stage in program management to ensure the achievement of entrepreneurial goals while supporting the realization of Adiwiyata School. Evaluations are carried out regularly and continuously by involving principals, teachers, school committees, and student representatives. The evaluation process is focused on the suitability of program planning, the effectiveness of the implementation of activities, and the impact of the program on the formation of entrepreneurial character and environmental concern of students. The results of the evaluation of Natural Resource Utilization are used as a basis for decision-making for sustainable program improvement and development. The follow-up of the evaluation is realized through improving planning, strengthening cooperation with external parties, and increasing innovation in environmentally friendly entrepreneurial activities. Thus, the evaluation of the Utilization of Natural Resources not only functions as a tool for program control, but also as a strategic effort in maintaining the sustainability and success of the school in realizing and maintaining the title of Adiwiyata School. This is in accordance with what was conveyed by Mrs. Meita Siti Hasanah as the Principal of Tunggalpager State Elementary School, Mojokerto Regency. The following is based on the results of the interview with the Principal.

"... Evaluation of Natural Resources Utilization based on environmental care is carried out periodically and continuously as part of the controlling function in school management. The evaluation is carried out by monitoring the suitability between the planning and implementation of entrepreneurial activities in schools. The evaluation focuses not only on the final results, but also on the implementation process, such as student involvement, the role of teachers, and the impact of activities on the culture of caring for the school environment." (SDNT. W.KS. EVALMNJPKSA.5-01-2026:3).

Based on the results of in-depth interviews, observations, and documentation studies at SD Negeri Tunggalpager, it was found that the management of Natural Resources Utilization in the two schools has been implemented as a strategy to support the realization of Adiwiyata School. The utilization of Natural Resources is not only directed at the development of students' economic skills, but also integrated with the values of environmental concern in a sustainable manner.

Although they have different characteristics and conditions of the school, the two schools show similar patterns in the management of entrepreneurship programs, especially in the implementation of management functions that include planning, implementation, and evaluation.

Planning for the use of natural resources at SD Negeri Tunggalpager is carried out systematically through school coordination meetings involving principals, teachers, students, and parent representatives. Planning begins with the identification of potentials and problems in the school environment, such as waste management, school garden utilization, and vacant land utilization.

Planning for the use of environment-based natural resources is motivated by the need for schools to foster an entrepreneurial spirit from an early age that is in line with the values of environmental concern. The school realizes that as a school that is committed to the Adiwiyata Program, as evidenced by the achievement of 2nd place at the district level, it is necessary to have a learning program that is not only oriented to the academic aspect, but also the formation of a character of caring for the environment, independent, creative, and responsible. (Defpen, SDNT. W.KS. 5-01-2026).

The use of natural resources is designed to be integrated in thematic learning, as well as co-curricular and extracurricular activities. Planning is adjusted to the class level and the characteristics of students, so that activities are gradual and sustainable. All program plans are formally outlined in the Education Unit Curriculum document as part of the school's environmentally sound policy.



Figure 1. A Series of Practical Activities for Making Traditional Herbal Medicine in Entrepreneurship Programs

Evaluation of Natural Resource Utilization is carried out periodically through direct observation, teacher reports, student presentations, and assessment of entrepreneurial products. Success benchmarks include changes in student behavior, increased environmental awareness, and students' ability to process environmental potential into valuable products. And it is proven that SD Negeri Tunggalpager was ranked 2nd in Adiwiyata schools at the Mojokerto Regency level.

The benchmarks for program success include increasing students' concern for the environment, students' ability to process environmental potential into valuable products, and the growth of independent, creative, and responsible attitudes. That changes in student behavior, such as the habit of sorting waste and maintaining the cleanliness of the school environment, are important indicators of the success of the program (Defpen, SDNT. W.KOM. EVALMNJPKSA.5-01-2026:4).

LAMPIRAN : KEPUTUSAN BUPATI MOJOKERTO
NOMOR 188.45/ / HK/416-012/2025
TANGGAL

DAFTAR SEKOLAH ADIWIYATA KABUPATEN MOJOKERTO

NO	NAMA SEKOLAH	KECATAMAN	NILAI
1.	SDN Jampirogo	Sooko	97,98
2.	SDN Tunggalpager	Pungging	94,14
3.	SMPN 2 Ngoro	Ngoro	91,19
4.	SMPN 1 Pungging	Pungging	91,07
5.	SDN Jatirowo 2	Dawarblandong	90,59
6.	SDN Gunungan	Dawarblandong	90,52
7.	SDN Mejoyo	Bangsai	89,89
8.	SDN Watesnoro 2	Ngoro	89,21
9.	SDN Jatilangkung	Pungging	88,08
10.	SDN Jetis 1	Jetis	87,9
11.	SDN Pungging 2	Pungging	86,93
12.	SDN Manduro 1	Ngoro	86,56
13.	SDN Karangasem	Kutorejo	86,25
14.	SDN Japan	Sooko	85,78
15.	SDN Bendung 1	Jetis	84,83
16.	SMPN 2 Gondang	Gondang	84,7
17.	SDN Randugenengan	Dlanggu	83,97
18.	SMPN 3 Gondang	Gondang	83,21
19.	SDN Ketemasdungus	Puri	82,89
20.	SDN Sooko 1	Sooko	80,68
21.	SMPN 2 Pungging	Pungging	79,31
22.	SDN Pekuwon	Bangsai	79,25
23.	SDN Pandan	Pacet	77,62
24.	SDN Tanjanganro 1	Ngoro	76,15
25.	SDN Kedungmaling	Sooko	75,46
26.	SDN Brangkal	Sooko	70,47
27.	SDN Pungging 1	Pungging	70,04

BUPATI MOJOKERTO,

MOHAMMAD ALBARRAA
MOJOKERTO

Figure 2. List of Supernatural Schools

That SD Negeri Tunggalpager is more optimizing collaboration and collaborating with class groups so that the results of the Utilization of Natural Resources in realizing adiwiyata schools are ranked 2nd in adiwiyata schools at the Mojokerto Regency level.

Indicators of Success include Collaboration: The extent to which students can work together to complete group assignments. Product Quality: Assessment of the treated plants or herbal products produced. Appreciation: A positive response from parents, buyers, or other teachers at the school bazaar. Project Reflection After the project is completed, students and teachers jointly conduct reflections to evaluate the success of the project and plan development in future programs.

Discussion

The results of the study show that the management of natural resource utilization (SDA) at SD Negeri Tunggalpager is carried out through three main management functions, namely planning, implementation, and evaluation that are integrated with the Adiwiyata School program. At the planning stage, the school identifies environmental potential such as school gardens, waste management, and the use of vacant land which is then outlined in the curriculum document of the education unit. At the implementation stage, activities are manifested in the form of contextual learning, the practice of making environment-based products such as traditional herbal medicine, and the active involvement of students in group activities. Meanwhile, the evaluation stage is carried out periodically through observations, teacher reports, and student product assessments that focus on changes in environmental care behavior and student independence. These findings show that the use of natural resources is

not only oriented to ecological aspects, but also to the formation of students' character and entrepreneurial skills.

If analyzed theoretically, these findings are in line with the concept of education management which emphasizes the functions of planning, organizing, actuating, and controlling as a single system in achieving organizational goals effectively and efficiently (Fauzi, 2020). From the perspective of environmental education, the integration of the use of natural resources in the curriculum reflects the experiential learning approach, which is the process of learning through direct experience that is able to improve conceptual understanding as well as the formation of attitudes and values. In addition, students' involvement in real practice demonstrates the application of constructivist theory which emphasizes that knowledge is built through active interaction with the environment. Thus, the management of the use of natural resources in schools not only functions as an administrative strategy, but also as a pedagogical approach that supports meaningful learning.

The findings of this study are related to several previous studies. Handayani (2020) stated that the success of resource management is greatly influenced by systematic planning and coordination between the parties involved. The results of the research at SD Negeri Tunggalapager strengthen these findings, because planning was carried out through a coordination meeting involving school principals, teachers, and other school residents. Furthermore, Purba et al. (2024) emphasized the importance of active community participation in natural resource management. This condition is also seen in this study through the involvement of students and parents in the implementation of school environment programs. On the other hand, Wahdi et al. (2025) found that educational institutions often experience obstacles in integrating environment-based entrepreneurial activities into formal curricula. In contrast to these findings, SD Negeri Tunggalapager has actually integrated environmental entrepreneurship activities into the curriculum and co-curricular activities in a structured manner.

Based on these comparisons, this study shows more affirmations of previous research, especially related to the importance of systematic planning and the participation of school residents in environmental management. However, there is an element of antithesis to the findings of Wahdi et al. (2025) which mention the low integration of environmental entrepreneurship in educational institutions. This research actually shows that this integration can be carried out effectively if supported by the commitment of school management, environmentally sound curriculum policies, and collaboration with parents and the school community.

Thus, this discussion emphasizes that the success of natural resource utilization management in realizing Adiwiyata School does not only depend on the availability of environmental potential, but also on the quality of managerial management, a contextual pedagogical approach, and the participation of all school residents. The integration between management functions, experiential learning theory, and collaborative support is a key factor in creating an environmentally cultured and sustainable school.

CONCLUSION

Based on the results of the research, it can be concluded that the management of natural resource utilization at SD Negeri Tunggalapager not only functions as an effort to manage the school environment, but also as an educational strategy that is able to shape the character and skills of students in a sustainable manner. The planning, implementation, and evaluation of integrated programs shows that the success of the Adiwiyata School is not solely determined by administrative achievements or formal awards, but by the school's consistency in building a culture of environmental care through real practices in learning activities. The use of natural resources applied in schools has become a contextual learning medium that encourages students to learn through hands-on experience. This process contributes to the growth of independence, creativity, responsibility, and increased ecological awareness of students.

Thus, the management of the use of natural resources not only has an impact on the physical environment aspects of the school, but also on the formation of students' values, behaviors, and life skills. Overall, this study emphasizes that the integration of school management functions, experiential learning, and active participation of school residents is the key to realizing an environmentally cultured and sustainable school. Natural resource utilization management can be understood as a holistic educational approach that connects environmental, entrepreneurship, and cultural aspects of schools in one system that supports and reinforces each other.

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