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## Adiwiyata Certification: Introducing Sustainability through Green School and Education

**Nur Hamidah**

Education University of Indonesia

**Topik Hidayat**

Education University of Indonesia

**Siti Sriyati**

Education University of Indonesia

**Utari Akhir Gusti**

Education University of Indonesia

**Abstract:** Education for Sustainable Development (ESD) gives learners the knowledge, skills, values and behavior to face the global challenges. ESD offers countries to develop and expand educational activities that focus on sustainability issues. Green school is one of the initiatives that introduce global challenges to schools such as climate change, water, biodiversity, the oceans, sustainable urbanization, disaster risk reduction, and sustainable lifestyles through education. The research aims to describe the implementation of integrated green school in Bandung public school as an initiative to introduce sustainability through education. Descriptive qualitative method is used in this research. Observations and interviews were conducted to principal, teachers, students, and other parts of the school community. Literature study was also conducted to compare the implementation of Bandung green school to other schools in sustainability. The result showed that Bandung integrated green school has the whole-school approach to sustainability than non- green school. There are 20 programs implemented by Bandung green school by integrating them to the whole school community. Integrated green school initiative led the school to introduce sustainability through education.

**Keywords:** Adiwiyata certification, Sustainability, Green school, Education for sustainable development

### Introduction

One of the serious challenges that society will face in the future is environmental problems. No longer within the scope of each country or region, environmental issues have become one of the main focuses of global problems and challenges (Dunlap & Jorgenson, 2012). Therefore, environmental education plays a very important role in sustainable development, preparing an environmentally conscious and healthy society for future generations. Furthermore, the aim of providing environmental education is to ensure that all individuals grow as environmentally literate people (Scannella & McCarthy, 2014). Aspects of environmental awareness that can be taught in educational institutions according to Radwan and Khalil (2021) include three main contexts, namely teaching/education principles, activity programs and school policies that are in line with the concept of sustainability or Education for Sustainable Development (ESD). One of the programs and policies promoted by Indonesia to introduce and integrate ESD is through

*Adiwiyata Certification.* The term "green school" or "adiwiyata" (for Indonesian schools) refers to an ideal school that provides students with access to varied knowledge as well as standards and ethics that serve as the

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foundation of their life to achieve goals in sustainable development initiatives (Wardani, 2020; Fathurrahman et al., 2022).

The school in this study was also chosen because it promoted a green environment through a variety of sustainable initiatives. Green schools were also established as a formal educational institution's response to achieving sustainable development goals and encouraging society's transition to sustainability. As a result, students can engage the knowledge, skill and attitude of sustainability through school education. In Indonesia, the green school program is called Adiwiyata (Wardani, 2020; Fathurrahman et al., 2022). The subject school has been recognized as a national green school since 2014 (Pusat PGLHK, 2014). This paper will describe praktik program yang dilaksanakan oleh Adiwiyata Public high school in Bandung dan bagaimana hal tersebut berpengaruh terhadap pengetahuan, sikap dan keterampilan keberlanjutan siswa.

## Method

Descriptive qualitative method is used in this research. Observations and interviews were conducted to principal, teachers, students, and other parts of the school community. Literature study was also conducted to compare the implementation of Bandung green school to other schools in sustainability.

## Result and Discussion

Adiwiyata or green school certification create a sustainable learning environment. This participatory action involves teachers, students, corporations and the community around the school to get Adiwiyata certification. The participatory actions that introduce sustainability are plant cultivation, waste management, independent food production and awareness campaign. This is supported by the presence of green house, green space, waste banks, biodigesters, hydroponics and fish cultivation in drums.

The school invites residents' participation in collecting green waste from canteen to be processed by a biodigester; the gas produced can be used by all canteen sellers. Meanwhile, the liquid residue can be used for hydroponic fertilizer. Lastly, cultivating fish in drums can also be done to provide a source of protein. Above the drum, some hydroponics may be planted. All the food produced by school members can finally be shared to the member or sell it at an affordable price.



Figure 1. Biodigester from CSR (left), classified trash bin in waste bank (right)

Similar green school initiatives are undertaken in other countries with different names, such as the Eco-Schools International Program in Europe, the Australian Sustainable Schools Initiative, New Zealand's 'EnviroSchools,' Israel Green School Certification, Swedish Schools for Sustainable Development, and UK Sustainable Schools

(Goldman et al., 2018). Despite variations in program execution in each school and hosting country, these programs generally share a common goal. Green schools embody the ideal concept of a school providing access to diverse knowledge, norms, and ethics, forming the foundation of students' lives to achieve goals in sustainable development.



Figure 2. Hydroponic and fish cultivation

The subject school has been recognized as a national green school since 2014. Several initiated programs related to flowering plant diversity include plant procurement in green space, vertical gardens, hydroponics, and the establishment of a greenhouse. It is documented that there are 8 (eight) green spaces filled with diverse plants in the school. 78 diverse species of flowering plants present at the Public Green School Bandung, comprising 23 orders and 37 families.



Figure 3. Green space inside the school

The subject green school initiated the green school (Adiwiyata) program in 2014, leading to diversity, as not all schools can attain the Adiwiyata certification. A school can achieve the Adiwiyata certification by fulfilling four aspects: (1) environmentally oriented policies; (2) an environmentally based school curriculum; (3) participatory-based activities; and (4) environmentally friendly facility management (Diyan Nurvika Kusuma

Wardani, 2020; Fathurrahman et al., 2022). The subject green school, has commendably fulfilled all the mentioned aspects. Detail initiatives are presented in Table 1.

Table 1. Subject green school initiatives

No.	Initiative action	No.	Initiative action
1.	Creating 8 green space	11.	Socialization of zero waste (recycling)
2.	Creating healthy canteen	12.	Paper recycling
3.	Creating waste bank	13.	Identification and tagging plant species
4.	Creating green house	14.	Plant cultivation
5.	Creating biopori	15.	Trash festival
6.	Creating vertical garden	16.	Making compost
7.	Creating hydroponic	17.	Using biodigester
8.	Bringing tumbler and lunchbox	18.	Fish cultivation
9.	Creating gazebos for outside learning	19.	Creating Alga (eco- friendly) community
10.	Socialization of waste sorting	20.	Clean and sustain classroom

## Conclusion

Green school is one of the initiatives that introduce global challenges to schools such as climate change, water, biodiversity, the oceans, sustainable urbanization, disaster risk reduction, and sustainable lifestyles through education. Green school in Bandung public school as an initiative to introduce sustainability through education has the whole-school approach to sustainability than non-green school. There are 20 programs implemented by Bandung green school by integrating them to the whole school community. Integrated green school initiative led the school to introduce sustainability through education.

## Scientific Ethics Declaration

The authors declare that the scientific ethical and legal responsibility of this article published in EPHELS journal belongs to the authors.

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**Author Information**

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**Nur Hamidah**

Biology Education, Education University of Indonesia,  
Indonesia

Contact Email: [izunhamidah@upi.edu](mailto:izunhamidah@upi.edu)

**Topik Hidayat**

Biology Education, Education University of Indonesia,  
Indonesia

**Siti Sriyati**

Biology Education, Education University of Indonesia,  
Indonesia

**Utari Akhir Gusti**

Biology Education, Education University of Indonesia,  
Indonesia

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