

## INTEGRATION OF SDGS, CONTINUING EDUCATION (ESD), CLIMATE CHANGE, AND GREEN EDUCATION (Case Study at SMPN 1 Tanjungpinang)

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### Abstract

#### Keywords:

*Education for Sustainable  
 Development;  
 Green Education;  
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 Adiwiyata;  
 Islamic Education Management*

*Global sustainability challenges, including climate change and environmental degradation, require education systems to move beyond adding sustainability topics to the curriculum and toward institutional practices that are consistently managed. Previous studies on the Adiwiyata Program in Tanjungpinang have focused on implementation profiles and environmental attitudes, so the links between the Sustainable Development Goals (SDGs), Education for Sustainable Development (ESD), climate change education, and Green Education at the school level remain insufficiently examined. This study analyzes the integration of these four concepts at SMP Negeri 1 Tanjungpinang, Riau Islands, Indonesia, within the perspective of Islamic Education Management. A qualitative case study was employed. Data were drawn from the school's vision and mission statements, publications on Adiwiyata cadre coordination and communal cleaning activities in June 2026, and the researcher's direct observations of student waste-disposal habits, organic waste sorting, and school greenery. Data were analyzed descriptively and thematically in three stages: categorizing data by dimension, mapping evidence onto relevant SDGs, and synthesizing the findings with ESD, climate change education, and Green Education concepts. The findings show that the school's environmentally cultured vision, Adiwiyata coordination, participatory activities, and observed practices align most directly with SDG 4, SDG 12, and SDG 15, while links to SDG 6, SDG 11, and SDG 13 remain contextual or potential. Explicit evidence of climate change education is not yet available. An integrative model is proposed that positions SDGs as direction, ESD as competency development, climate education as a learning focus, and Green Education as whole-school implementation, with Islamic values (khalifah, amanah, mizan, and the prohibitions of fasad and israf) serving as an ethical foundation.*

## INTRODUCTION

Climate change, environmental degradation, biodiversity loss, pollution, and unsustainable resource consumption patterns are global challenges that require a cross-sectoral response. The *Intergovernmental Panel on Climate Change* (IPCC, 2023) synthesis report emphasizes that human activities have caused global warming and have a wide impact on natural systems and human life. These problems are not only related to ecological aspects, but also related to social, economic, health, governance, and intergenerational justice dimensions. Therefore, efforts to realize sustainability are not enough to be carried out through the development of technology or environmental policies alone, but also require changes in knowledge, values, attitudes, and people's behaviors. In this context, education has a strategic role in shaping the awareness and ability of the younger generation to understand and respond to sustainability issues responsibly.

The global commitment to sustainable development is realized through the 2030 Agenda which contains 17 *Sustainable Development Goals* (SDGs) and 169 interrelated targets (United Nations, 2015). The seventeen goals include poverty eradication (SDG 1), hunger eradication (SDG 2), health and well-being (SDG 3), quality education (SDG 4), gender equality (SDG 5), clean water and decent sanitation (SDG 6), clean and affordable energy (SDG 7), decent work and economic growth (SDG 8), industry, innovation, and infrastructure (SDG 9), gap reduction (SDG 10), sustainable cities and settlements (SDG 11), responsible consumption and production (SDG 12), climate change management (SDG 13), ocean ecosystems (SDG 14), terrestrial ecosystems (SDG 15), peace, justice, and resilient institutions (SDG 16), and partnerships to achieve goals (SDG 17). The interconnectedness between these goals shows that sustainability cannot be achieved through programs that run in isolation. Sachs et al. (2019) emphasized that achieving the SDGs requires a cross-sectoral transformation that connects environmental, social, economic, and institutional dimensions. Thus, education is not only one of the goals of development, but also an important instrument to encourage the achievement of these goals.

Within the framework of the SDGs, Goal 4 on quality education has a strategic position, especially Target 4.7 which emphasizes the importance of knowledge and skills to support sustainable development. UNESCO (2020) explains that *Education for Sustainable Development* (ESD), or education for sustainable development, is an educational approach that equips students with the knowledge, skills, values, and attitudes to make decisions and act responsibly for the sustainability of the environment, society, and economy. ESD is not only oriented towards mastery of materials, but also on the formation of competencies to identify problems, think critically, collaborate, make decisions, and produce concrete actions. Implicitly, schools need to integrate sustainability principles into the learning process, institutional policies, school culture, and daily activities so that students gain hands-on experience in implementing sustainable behaviors.

The urgency of ESD development is getting stronger in the face of climate change. Climate change education is needed to build an understanding of the causes, impacts, mitigation, adaptation, and risks of climate change while developing students' ability to participate in solving environmental problems. Monroe et al. (2019), through a systematic review of climate change education strategies, shows the importance of participatory, action-oriented, and contextual learning in relation to the context of students' lives.

Therefore, climate change education is not enough to convey information about global warming or environmental damage, but needs to be linked to learning experiences that allow students to observe problems, analyze causes, design solutions, and evaluate actions taken. At the school level, these approaches can be applied through project-based learning, waste management, water and energy conservation, greening, and school environmental maintenance activities.

The main challenge of continuing education is not only related to the availability of learning materials, but also to how sustainability principles are translated into consistent institutional practices. Kopnina (2020) criticizes the implementation of ESD which risks losing transformative depth if it is only an additional topic in the curriculum. There are at least three alternative approaches that can be developed. First, integrating sustainability materials into existing subjects, although this approach risks stopping at the knowledge aspect if concrete action is not followed. Second, implementing programs and providing environmentally friendly facilities, such as waste sorting, greening, and energy saving, which can produce physical changes but are potentially separate from the learning process. Third, applying the *whole-school approach*, which is integrating policies, curriculum, culture, operations, school community participation, and partnerships into one sustainable management system. The third approach is seen as relevant because it allows for the connection between knowledge, behavior, and institutional governance. Mogren et al. (2019) show the importance of leadership, planning, school citizen participation, and community involvement in the application of education for sustainable development. In this study, *Green Education* is understood as an educational approach that integrates sustainability principles into learning, policies, facility management, school culture, and partnerships, not just the implementation of greening activities.

In Indonesia, efforts to realize sustainable development have a policy basis through Presidential Regulation of the Republic of Indonesia Number 59 of 2017 concerning the Implementation of the Achievement of Sustainable Development Goals. At the level of education units, the Adiwiyata Program is one of the instruments to build schools that care about and have an environmental culture. The program emphasizes the linkage between environmentally sound school policies, the implementation of an environment-based curriculum, participatory environmental activities, and the management of environmentally friendly supporting facilities. The framework is in line with the principles of ESD and *Green Education* because it places the environment as part of school policies, learning, participation, and management. However, the implementation of sustainable education needs to be understood not only through the existence of environmental programs, but also through the relationship between school policies, student character formation, learning practices, and sustainable environmental management.

The relevant empirical context to examine this problem is SMP Negeri 1 Tanjungpinang, Tanjungpinang City, Riau Islands Province. Based on the school's official website, the vision of this education unit is "The realization of graduates who have faith and piety, superiority, digital proficiency and environmental culture". The vision is described through indicators that include the cultivation of sustainable living principles and the implementation of meaningful and sustainability-oriented learning. In the mission aspect, the school also emphasizes the importance of fostering a culture of environmental care as a whole (SMP Negeri 1 Tanjungpinang, n.d.). The vision and mission show that environmental concern has been placed as part of the direction of

school development, thus providing a policy basis for the implementation of sustainable education.

This commitment is also reflected in the environmental program published through the school's official website in June 2026. The article titled *Strengthening Synergy, Adiwiyata Cadres of SMP Negeri 1 Tanjungpinang Hold a Joint Coordination Meeting with the Teacher Council*, published on June 3, 2026, documents the coordination between the Adiwiyata Cadre and the teacher council to evaluate the activities that have been running, develop short- and long-term work programs, strengthen student participation, and discuss obstacles and alternatives to completing environmental programs. Furthermore, the publication *Real Action of Adiwiyata Cadres: SMP Negeri 1 Tanjungpinang Holds Mutual Cooperation to Clean UKS and Sewer Areas*, on June 11, 2026, documenting the cleaning of UKS areas and waterways involving grade VIII Adiwiyata Cadres with other students (SMP Negeri 1 Tanjungpinang, 2026a, 2026b). The two publications show the school's efforts in developing coordination, student participation, and concrete actions to maintain the quality of the learning environment.

In addition to the school program documentation, the results of the researcher's direct observation show that clean, green, and beautiful culture has been reflected in daily life at SMP Negeri 1 Tanjungpinang. This concern can be seen from the behavior of students who immediately put garbage in the trash can when they find garbage in front of them. The school also implements organic waste sorting and has an environment overgrown with various trees and plants. The findings of this observation show that environmental concern is not only manifested through scheduled activities, such as mutual cooperation and the Adiwiyata program, but is also seen in the habits of students and the physical condition of the school environment. The behavior of throwing garbage in its place and sorting waste can be associated with the formation of responsible consumption habits, while the presence of trees and plants supports the creation of a green and comfortable learning environment. Within the framework of the SDGs, these practices are mainly related to SDG 12 on responsible consumption and production and SDG 4 on quality education. This linkage is the basis for further examining how school environmental practices can be linked to ESD competencies, climate change education, and *Green Education governance*.

This condition is also relevant to previous research by Afriliani et al. (2019) regarding the profile of the implementation of the Adiwiyata Program and environmental care attitudes in junior high schools with Adiwiyata status at the provincial level in Tanjungpinang in 2018. The study examines the four main components of the Adiwiyata Program, namely environmentally friendly school policies, the implementation of an environment-based curriculum, participatory-based environmental activities, and the management of environmentally friendly supporting facilities. The study provides an empirical basis that environmental education needs to be understood through the linkage of policies, learning, participation, and management of facilities, not just as a cleaning activity. However, the research focuses on the profile of the implementation of Adiwiyata and environmental care attitudes in the context of 2018, while this study is directed to examine the broader linkages between SDGs, ESD, climate change education, and *Green Education* by taking SMP Negeri 1 Tanjungpinang as a research case. Thus, the focus of this research lies in the development of integrative analysis that connects global

development goals, sustainable learning competencies, responses to climate change, and school management practices.

Based on this description, the research problem lies in the importance of understanding how global development goals, sustainable learning competencies, climate change education, and *Green Education practices* are connected in the management of educational units. SMP Negeri 1 Tanjungpinang shows that there is a compatibility between the school vision, Adiwiyata program, student participation, and observed environmental care behavior. This condition provides an opportunity to examine how existing practices can be understood through the integrative framework of SDGs, ESD, climate change education, and *Green Education*. This study uses a case study approach to analyze school policy documents, environmental program publications, and relevant observational findings, so that the relationship between institutional commitment and environmental practices can be explained contextually.

This research aims to analyze the integration of SDGs, *Education for Sustainable Development*, climate change education, and *Green Education* at SMP Negeri 1 Tanjungpinang. In particular, the research is directed to identify the relationship between these principles and school vision and policies, describe environmental practices and student participation, and analyze their relevance to the development of sustainable education at the education unit level. Theoretically, this research is expected to contribute in the form of an integrative analysis framework that connects sustainable development goals, ESD competencies, climate change education, and *Green Education* practices. Practically, the results of the research are expected to be considered for schools in strengthening environmental policies, contextual learning, character formation of environmental care, student participation, and program evaluation in a sustainable manner. Thus, this research is expected to enrich the understanding of how the culture of environmental care that has grown in schools can be developed as part of a sustainability-oriented education system.

## LITERATURE REVIEW

### Sustainable development and SDGs as a normative framework

The popular concept of sustainable development comes from the formulation of the Brundtland Commission, which is development that meets the needs of the current generation without sacrificing the capabilities of future generations. Purvis et al. (2019) explore that the idea of the three pillars of sustainability (environmental, social, and economic) develops from the formulation and then forms the basis of various policy frameworks. The 2030 Agenda expands this idea into 17 interconnected goals. Sachs et al. (2019) emphasize that connectivity demands an integrated transformation, where education is one of the main levers. Kioupi and Voulvoulis (2019) reinforce this by showing that the relationship between the SDGs and educational outcomes can be mapped systemically, so that education plays a role in preparing competencies for all of these goals.

### Education for sustainable development

ESD is understood as education that equips students with the knowledge, skills, values, and attitudes to make decisions and act for a sustainable future (UNESCO, 2020). Rieckmann (2018) formulated key competencies of ESD, such as systems thinking,

anticipatory thinking, collaboration, and integrated problem-solving. Brundiers et al. (2021) then proposed an agreed framework of sustainability competencies in higher education. These two frameworks affirm that ESD is oriented towards the competence to act, not just the mastery of the content of the material.

ESD is also inseparable from criticism. Kopnina (2020) assesses that the implementation of ESD often loses its critical direction and stops at the addition of topics. Wals and Benavot (2017) emphasized that answering sustainability challenges requires changes to education and lifelong learning, not just additional programs. Thus, the success of ESD is highly dependent on the way institutions manage and institutionalize it.

### **Climate change education**

The IPCC (2023) concludes that climate change due to human activities has had a wide impact and that mitigation and adaptation choices in this decade determine long-term risks. In the field of education, Monroe et al. (2019) through a systematic review found that effective strategies are generally participatory, action-oriented, and close to the context of learners. These findings show that climate literacy needs to be developed with competence to act and change institutional practices, not through information delivery alone. At the global policy level, UNESCO (2021) through the *Greening Education Partnership* emphasizes four interconnected areas, namely green schools, green curriculum, strengthening the capacity of educators and education systems, and green communities.

### **Green Education and institution-wide approach**

In this paper, *Green Education* is understood as an approach that integrates sustainability principles into the institution's policies, learning, culture, and operations. This understanding is in line with the *whole-institution approach*. Mogren et al. (2019) show that a whole-institution approach is connected to improving school quality, with leadership, planning, citizen participation, and partnerships as key elements. In higher education, Leal Filho et al. (2019) show that the integration of SDGs in university teaching is still variable and needs to be strengthened. At the student level, Boca and Saraçlı (2019) indicate that environmental education contributes to awareness and attitudes that support sustainability.

In Indonesia, the policy foundation includes Presidential Regulation Number 59 of 2017 concerning the implementation of the SDGs and the Adiwiyata Program (Minister of Environment and Forestry Number 53 of 2019) which emphasizes environmentally sound policies, environment-based curriculum, participatory activities, and management of environmentally friendly facilities. Since these elements require planning, organizing, implementing, and monitoring (Robbins & Coulter, 2018), the whole-of-institution approach is essentially a matter of education management.

### **Islamic environmental ethics as a foundation of values**

Islamic environmental ethics is based on the concept of humans as caliphs and trustees of nature (QS. Al-Baqarah [2]: 30). This responsibility is accompanied by the prohibition of damaging the earth after it has been repaired (QS. Al-A'raf [7]: 56), the recognition that environmental damage is related to human actions (QS. Ar-Rum [30]: 41), and the command to control consumption (QS. Al-A'raf [7]: 31). Hancock (2018) shows that these values are the basis of the Muslim community's environmental movement. In Indonesia, Mangunjaya and Praharawati (2019) examined how fatwas are

used to encourage environmental conservation, and the Indonesian Ulema Council (2023) issued a fatwa on global climate change control that gives religious legitimacy to climate action. In the context of MPI, these values make sustainability a managerial agenda as well as an agenda for character formation and moral responsibility.

## RESEARCH METHODS

This research is designed as a qualitative case study at SMP Negeri 1 Tanjungpinang. The case study was chosen because the research focuses on understanding the integration of SDGs, Education for Sustainable Development (ESD), climate change education, and Green Education in the context of certain educational units. The analysis unit includes school policies and visions, Adiwiyata program publications, observed environmental care behavior practices, organic waste sorting, and school greening conditions.

The data sources used include (1) official school documents in the form of vision and mission; (2) publication of school activities regarding the coordination of Adiwiyata Cadres and teacher councils as well as mutual cooperation activities to clean UKS and waterways in June 2026; and (3) records of direct observation by researchers regarding students' habits of disposing of waste in their place, sorting organic waste, and the existence of trees and plants. The observation information in this manuscript follows the information submitted by the researcher. For the final version of the article, field notes should be completed with the date of observation, observation location, aspects observed, and photo documentation if available.

The analysis was carried out in a descriptive-thematic manner through three stages. First, grouping data based on the dimensions of school policy, behavior and learning, physical environment management, participation, and evaluation. Second, mapping evidence on the most relevant SDGs, especially SDG 4, SDG 11, SDG 12, SDG 13, and SDG 15, without considering that all goals have been achieved just because there are environmental programs. Third, synthesizing the relationship between case data and the concept of ESD, climate change education, and Green Education. The validity of the interpretation was strengthened through a comparison between official school documents and observation results.

## RESULTS AND DISCUSSION

### 1. The Linkage of SDGs, ESD, Climate Change Education, and Green Education

SDGs provide development directions; ESD translates these directions into knowledge, skills, values, attitudes, and actionable capabilities; climate change education focuses competencies on risk, mitigation, and adaptation; while Green Education encourages the application of sustainability principles in school policies, learning, culture, facilities, and partnerships. These relationships should not be understood as rigid linear sequences, but as mutually reinforcing frameworks. In the context of SMP Negeri 1 Tanjungpinang, the vision of environmental culture, the coordination of Adiwiyata Cadres, the habit of throwing waste in its place, organic waste sorting, and school greening provide an early example to read the connection between policy directions and daily practices.

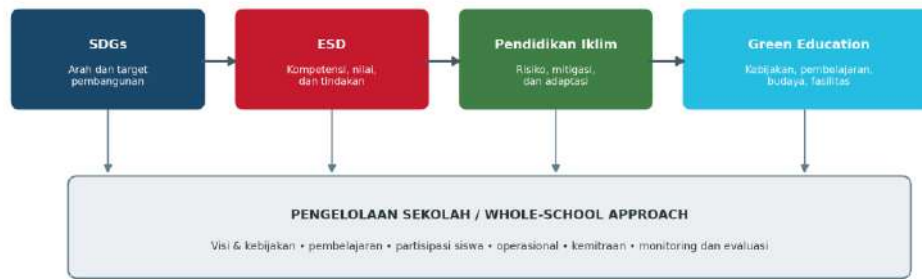


Figure 1. Integrative framework of SDGs, ESD, climate change education, and Green Education in the context of SMP Negeri 1 Tanjungpinang.

| Concept                  | Functions in the framework                          | Example of evidence/case context                                                                                | Analytical notes                                                            |
|--------------------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| SDGs                     | Development direction and goals                     | Vision of caring for the environment; behavior of disposing of waste in its place; waste sorting; reforestation | Relevance mapping, not claims that all SDGs are achieved                    |
| ESD                      | Competencies, values, attitudes, and actions        | Students' habits of maintaining cleanliness and involvement in environmental activities                         | Need for learning data to assess curriculum integration                     |
| Climate change education | Understanding of risk, mitigation, and adaptation   | Greening and waterway maintenance as a potential learning context                                               | There is not enough specific evidence on climate literacy                   |
| Green Education          | Implementation of sustainability in schools         | School vision, coordination of Adiwiyata Cadres, sorting of waste, trees and plants                             | Emphasizing policy, behavior, facilities, and participation relationships   |
| School management        | Planning, implementation, participation, evaluation | Coordination meeting of teachers and Adiwiyata Cadres as well as mutual cooperation actions                     | Evaluation documents and achievement indicators can strengthen the analysis |

Table 1. Mapping of concepts and contextual evidence in SMP Negeri 1 Tanjungpinang.

The mapping in Table 1 shows that the available evidence is most clearly in the dimensions of environmental culture, student behavior, greening, and program coordination. This is in line with the idea of a whole-school approach that places leadership, planning, school citizen participation, and integration of activities as important elements of continuing education (Mogren et al., 2019). At the same time, the critical study of Kopnina (2020) reminds that ESD needs to go beyond the addition of topics in the curriculum. Therefore, subsequent developments can link existing practices with learning objectives, cross-subject projects, and documented evaluations.

## 2. Mapping of SDGs elements relevant to the school's case

The seventeen SDGs form a broad development agenda. To read the case of schools proportionately, this study does not claim that all goals have been achieved by

SMP Negeri 1 Tanjungpinang. The mapping is focused on the goals that are most directly related to observational evidence and school documents, while other objectives are presented as the context of the global agenda.



Figure 2. Brief infographic of 17 SDGs.

| SDG                                              | Relevance to the case                                 | Available evidence                                                                | The power of linkage                                     |
|--------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------|
| SDG 4<br>Quality education                       | Character building and learning for sustainability    | School Vision, Environmental Care Behavior, Superhero Program                     | Live                                                     |
| SDG 11<br>Sustainable cities/communities         | Clean, healthy, and organized learning environment    | mutual cooperation in UKS and sewer areas; green environment                      | Contextually relevant                                    |
| SDG 12<br>Responsible consumption and production | Waste management and responsible habits               | Dispose of waste in place and organic waste sorting                               | Live                                                     |
| SDG 13<br>Addressing climate change              | Mitigation/adaptation education and climate awareness | Opportunities to integrate greening, water, and environment into climate learning | potential; need evidence of climate learning             |
| SDG 15<br>Terrestrial ecosystems                 | Greening and caring for vegetation                    | The presence of trees and plants in the school environment                        | Directly on reforestation; ecological impact needs study |
| SDG 6 Clean water and decent sanitation          | Sanitary hygiene and waterway management              | Sewer cleaning activities                                                         | Relevant; no water quality/access data yet               |

Table 2. Selective mapping of SDGs based on available case evidence.

The mapping shows that SDG 12 and SDG 4 have a relatively direct relationship with waste disposal behaviors, waste sorting, and the formation of environmentally caring

habits. The presence of trees and plants is related to SDG 15, while waterway maintenance activities are related to healthy learning environments and can be contextually linked to SDG 6 and SDG 11. The relationship to SDG 13 needs to be formulated carefully: greening and water management can be the gateway to climate learning, but it is not yet evidence that climate change education has been explicitly implemented. This affirmation of boundaries keeps the SDGs mapping evidence-based.

### **3. Culture of caring for the environment as a practice of Green Education**

The results of the observations submitted by the researcher show three prominent aspects: the habit of students putting garbage in the trash when they see it, the sorting of organic waste, and the presence of many trees and plants. These three aspects can be read as a combination of ecological behavior and the physical condition of the school's physical environment. Students' habits are a sign that the message of cleanliness has been present in daily actions, while waste sorting indicates a more targeted waste management practice than simply disposing of garbage in general. Trees and plants support a green school atmosphere and can be used as a source of contextual learning about vegetation, biodiversity, thermal comfort, and human relationships with the environment.

This interpretation is not intended to state that all school residents always behave consistently or that the ecological impact has been measured. To corroborate the findings, further research within the scope of the same case can record the frequency of littering behavior in place, the type of litter bin and the consistency of sorting, the distribution of vegetation, the involvement of students in plant care, and the relationship of environmental activities to teaching tools. With these indicators, the culture of environmental care can be analyzed not only as a general impression, but as a practice that can be described and evaluated.

### **4. Governance, participation, and program strengthening opportunities**

School publications regarding the coordination meeting of Adiwiyata Cadres and teachers' councils show that environmental programs have organizational and coordination dimensions. Meanwhile, the publication of mutual cooperation shows a form of student participation in maintaining the school environment. These two practices are in accordance with the principle of the whole-school approach, which is that environmental responsibility is not only placed on specific individuals, but needs to be built through leadership, role sharing, learning activities, and a shared culture (Mogren et al., 2019; UNESCO, 2020).

Strengthening opportunities can be directed at four things. First, connecting environmental programs with cross-subject learning objectives so that students understand the scientific and social reasons behind the activities. Second, expanding waste sorting with simple records of the type and volume of waste so that schools can monitor development. Third, developing reforestation activities as a means of learning about vegetation, biodiversity, water, and climate change. Fourth, compiling evaluation indicators that are easy to monitor, such as the consistency of waste sorting, class involvement, the cleanliness condition of the school area, plant care activities, and the number of learning or projects that raise sustainability issues. This suggestion is a development opportunity based on a case, not a claim that the school has not done all these practices.

## 5. Integrative model for SMP Negeri 1 Tanjungpinang

Based on the synthesis of concepts and case evidence, the proposed integrative model places the SDGs as a direction, ESD as a competency development approach, climate change education as the focus of learning about climate risks and responses, and Green Education as the application of sustainability principles in the overall school environment. All components are connected through school management which includes policies, learning, student participation, facilities, partnerships, and monitoring and evaluation. In the context of SMP Negeri 1 Tanjungpinang, the vision of environmental culture, coordination of Adiwiyata Cadres, waste disposal behavior in its place, organic waste sorting, and greening are real entry points to develop the model.

This model also helps to differentiate the level of analysis. First, the level of commitment, which is reflected in the vision and mission. Second, the level of implementation, which is reflected in program publications and behavioral and environmental observations. Third, the level of results, which requires more systematic indicators and documentation to assess the changes that occur over time. This distinction can prevent overly broad conclusions and at the same time help schools determine aspects that can be developed gradually

### Islamic values as an ethical foundation

The study found four main values that can be the basis of ethics. The first value is the caliphate, which places humans as the managers of the earth:

And say, "My Lord is the Messenger of Allah (peace and  
".(blessings of Allaah be upon him

*"I want to make a caliph on earth."* (QS. Al-Baqarah [2]: 30).

The second value is the prevention of damage:

.And do not corrupt the land after it has been repaired

*"And do not do any harm to the earth after it has been created."* (QS. Al-A'raf [7]: 56).

The third value is moderation and prohibition of excess:

Wakuluwa wa ashrabuwa wa wa la tusrifuwa ۞ inha la  
Yahib al-Musrifteen

*"Eat and drink, but do not excess. Indeed, Allah does not like people who are excessive."* (QS. Al-A'raf [7]: 31).

The fourth value is the appreciation of worship for ecological actions, as the Prophet (peace be upon him) said in the Muslim narration:

If you are a Muslim, you are a Muslim, and you are a  
.Muslim

*"It is not for a Muslim to plant a tree or sow seeds, and then be eaten by birds, humans, or animals, but for him it is almsgiving."* (HR. Muslim).

These values can be matched with modern sustainability concepts, as summarized in Table 3.

**Table 3. Translation of Islamic Values into Institutional Management Practices**

| Islamic Values              | Meaning                               | Manifest in Management                                                      | In line with |
|-----------------------------|---------------------------------------|-----------------------------------------------------------------------------|--------------|
| Khalifah                    | Responsibility for managing the earth | Vision, mission, and environmental policy of the institution                | SDGs 13, 15  |
| Trust                       | Integrity manages resources           | Transparent energy, water and budget management                             | SDG 6, 7     |
| Mizan                       | Balance                               | Planning that balances academic quality and environmental carrying capacity | SDG 11       |
| Facade prohibition          | Prevent damage                        | Waste management and biodiversity protection                                | SDG 14, 15   |
| Prohibition of <i>israf</i> | Avoiding waste                        | Reduction of food waste and resource savings                                | SDG 12       |
| Courtesy                    | Doing your best                       | Work culture and continuous evaluation                                      | SDG 4        |

The mapping in Table 2 is in line with Hancock (2018) that Islamic values are the basis of the Muslim community's environmental movement, and with Mangunjaya and Praharawati (2019) that fatwas can encourage conservation in Indonesia. The MUI fatwa (2023) on climate change control strengthens the religious legitimacy. These findings answer why Islamic values are relevant: they provide an intrinsic motivation, namely sustainability is understood as worship and trust, not just adherence to a program. This complements the findings of Monroe et al. (2019) that effective climate education needs to be related to context and meaning for students, because religious values are a context of meaning that is close to students in Islamic institutions. The concept of *israf* also meets SDG 12 on responsible consumption and production, so that the global agenda can be discussed in a vocabulary that is familiar to madrassas and pesantren residents. The practical benefit is that verses and hadith are no longer material decorations, but the basis for policy formulations, for example policies to reduce food waste in canteens or dormitories. The limitation is that the meaning of verses and hadith depends on interpretation, so follow-up studies need to involve scholars and environmental interpretation experts.

## CONCLUSION

SDGs, ESD, climate change, and *Green Education* are complementary concepts in building sustainable education. SDGs provide development directions, ESD provides transformative learning approaches, climate education focuses on understanding and action in dealing with climate change, and *Green Education* translates sustainability principles into institutional practices. In the perspective of Islamic Education Management, the integration derives moral legitimacy from Islamic teachings on the caliphate, trust, balance, prohibition of damage, and prohibition of excess.

The case of SMP Negeri 1 Tanjungpinang shows the compatibility between the school's vision that emphasizes environmental culture, the Adiwiyata Cadre program, participatory activities, and observed practices in the form of the habit of throwing waste

in its place, organic waste sorting, and the existence of trees and plants. These practices are most directly related to SDG 4 on quality education, SDG 12 on responsible consumption and production, and SDG 15 on terrestrial ecosystems; the relationship with SDG 6, SDG 11, and SDG 13 needs to be explained according to the available evidence. The proposed integrative framework places SDGs as a direction, ESD as a learning approach, climate change education as the focus of risk and response, and Green Education as the implementation of sustainability in school policies, behaviors, facilities, and participation. Further reinforcement can be done through integration into learning tools, waste and vegetation management indicators, and documented program evaluations. Since this analysis relies on school documents and observational findings submitted by researchers, further research can reinforce them with structured field notes, interviews, and measurement of environmental indicators.

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