

## REALIZING GREEN SCHOOL AT INSAN KAMIL NATURE SCHOOL WITH CONCEPTUAL MODEL

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### Abstract

The purpose of this study is to reveal the realization of green schools in Insan Kamil Nature School with a conceptual model. This research is a qualitative descriptive research. This research uses a phenomenological approach. The primary data in this study is the school community at Insan Kamil Nature School, Gowa Regency. The Principal and Vice Principal, teachers, students, education personnel, and other officers at Insan Kamil Natural School, Gowa Regency are the primary data sources that will be observed and interviewed to collect data on the focus of the problem in the study. The secondary data in this study are books or documents related to the research theme, especially school documents (Insan Kamil Nature School Kabupaten Gowa) related to school policies in environmental management. Data collection techniques with observation, interviews, documentation studies, and Focus Group Discussions (FGD). The results showed that; Realizing a green school at Insan Kamil Nature School must fulfill the four main components of a green school, therefore the curriculum and learning activities of Insan Kamil Nature School must be in line with the main components of a green school by relying on 4 (four) pillars of the Insan Kamil Nature School curriculum, namely: moral development, logic, leadership, and entrepreneurship.

**Keywords:** Green School, Insan Kamil Nature School, conceptual model

### Abstrak

*Tujuan penelitian ini untuk mengungkap mewujudkan sekolah hijau di Insan Kamil Nature School dengan model konseptual. Penelitian ini merupakan penelitian deskriptif kualitatif. Penelitian ini menggunakan pendekatan fenomenologi. Data primer dalam penelitian ini adalah warga Sekolah di Sekolah Alam Insan Kamil Kabupaten Gowa. Kepala Sekolah serta Wakil Kepala Sekolah, guru, peserta didik, tenaga kependidikan, dan petugas lainnya di Sekolah Alam Insan Kamil Kabupaten Gowa menjadi sumber data primer yang akan diobservasi dan diwawancarai untuk mengumpulkan data sesuai dengan fokus masalah dalam penelitian. Adapun data sekunder dalam penelitian ini adalah buku-buku atau dokumen yang terkait dengan tema penelitian, khususnya dokumen sekolah (Sekolah Alam Insan Kamil Kabupaten Gowa) yang berkaitan dengan kebijakan sekolah dalam pengelolaan lingkungan. Teknik pengumpulan data dengan observasi, wawancara, studi dokumentasi dan Focus Group Discussion (FGD). Hasil penelitian menunjukkan bahwa; Mewujudkan sekolah hijau di Sekolah Alam Insan Kamil*

*harus memenuhi empat komponen utama sekolah hijau, oleh karena itu kurikulum dan kegiatan pembelajaran Sekolah Alam Insan Kamil harus sejalan dengan komponen utama sekolah hijau dengan menyandarkan pada 4 (empat) pilar kurikulum Sekolah Alam Insan Kamil, yaitu: pengembangan akhlak, logika, kepemimpinan dan kewirausahaan.*

**Kata kunci:** *Green School, Insan Kamil Nature School, conceptual model*

## INTRODUCTION

The disturbed balance of nature has led to various disasters, the main cause of which is due to human actions that continue to exploit the environment (over-exploitation) without considering sustainability factors. This over-exploitation has resulted in a shift in the natural balance in nature. Humans have become the main actors in acts of environmental destruction, and do not reflect their role as khalifah fi al-ardh. (khalifah on earth). As khalifah (leader) on earth, humans should be responsible for managing the wealth of natural resources, as Allah swt says in QS. ar-Rūm/30: 41:

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ

Translation:

There is destruction on land and in the sea caused by the actions of men. (Through this) Allah makes them feel some of the (consequences) of their actions so that they return (to the right path). (Lajnah Pentashihan Mushaf al-Qur'an, Research and Education Agency, Ministry of Religious Affairs of the Republic of Indonesia & Language Development and Development Agency, Ministry of Education and Culture of the Republic of Indonesia, 2019)

Quraish Shihab in Tafsir Al-Mishbah states that the land and sea as mentioned in the verse are the places where the fasad occurs. This can mean that the land and sea are the targets of acts of destruction, for example by the occurrence of murder and robbery in both places, and can also mean that the land and sea themselves have experienced damage, imbalance, and lack of benefits. This imbalance occurs in the sea, land, and air. Polluted seas have led to the disruption of fish populations; hotter land has led to prolonged droughts and polluted air due to forest fires, and human activities. The imbalance that occurs in the environment is what leads some contemporary scholars to understand this verse as a hint of environmental damage (Shihab, 2017). The verse emphasizes that the destruction of nature is largely due to human actions. Humans make the environment a target of exploitation to fulfill their various interests. Excessive exploitation without efforts to preserve it causes damage to the environment.

Responding to various environmental problems in the world, there are various world-level meeting forums held to find solutions to various existing problems. Various efforts to find solutions and alternative solutions to the phenomenon of damage to the world's environment from the threat of damage and destruction, both by industrialization activities and scientific and technological experiments have been carried out in various forms. Various environmental actions and movements are also held by various

international NGOs (Non-Government Organizations) activities such as Green Peace, which aims to educate the world community about environmental damage and its impact on the world (Tippe & Subagyo, 2016).

Environmental development is carried out through community education on environmental issues through environmental education at all levels of society, and more specifically in the school environment. Siswanto stated that environmental education, especially in schools, emphasizes efforts to develop and increase the awareness of the school community to behave in an environmentally friendly manner so that the sustainability of the ecosystem continues. Education should be able to transform religious moral values in interacting with the environment, where the educational process is oriented towards the formation of a whole human being, both outwardly and inwardly in its totality as a khalifah; regulator and caretaker of nature and the environment (Siswanto, 2008).

Doni Koesoema states that the nature of education is a continuous process of human self-improvement that takes place from one generation to another. (A, 2007) The purpose of Islamic education is to give birth to a perfect human personality, religious, creative, productive, and sensitive to the situation of the environment. Humans throughout their lives will receive influence from the three main educational environments, namely from the family, school, and society and these three elements are called the three centers of education (A, 2007).

Islamic education is an institution that has three value objectives, namely, first, preparing the younger generation to hold certain roles in society in the future, second, transferring knowledge according to the expected role, and third, transferring values and culture in the context of character building to maintain the integrity and unity of society as a prerequisite for the survival of society and civilization (Langgulang, 1980).

Wahyuddin Naro states that Islamic Education is the education of the whole man; his mind and heart; spirit and body; morals and skills. The first characteristic of Islamic education is the emphasis on the search for knowledge, mastery, and development based on the worship of Allah SWT. Every adherent of Islam is obliged to seek knowledge to be understood in depth which in the next stage is developed within the framework of worship for the benefit of mankind, the search, mastery, and development of this knowledge is a continuous process, and in principle lasts a lifetime. this is what came to be known as life long education in the modern education system. To create Islamic education, it must be reorganized so that the education program is oriented towards achieving and mastering certain competencies, therefore Islamic education must have a multiprogram nature oriented towards perspective goals and descriptive needs, each program is structured using the principle of competitive integration of cognitive, affective, and “morals” and program diversification is arranged according to the real needs in the school environment which is oriented towards the appearance of Islamic learner behavior (Naro, 2020).

The behavior of the students in question includes a caring attitude towards the environment and the behavior of students in protecting their environment. Learners must

have a strong character, including character in protecting and preserving the environment by character education from an Islamic perspective. The school as a place where students learn is seen as an important community to be considered because as an educational institution the school functions to produce graduates who master science and technology and have faith and piety as a community of community builders. When plunging into society, school graduates are required to be responsive and become a solid part to play a role in solving problems, including related environmental problems.

Environmental education is intended to make students in schools have a balanced knowledge between worldly knowledge (oriented towards life in the world) and ukhrowi knowledge (oriented towards life in the hereafter), so that they can balance well between worship mahdhah (relationship with God) with worship ghairu mahdhah (relationship with creatures: humans and nature). It is also expected that students can implement the idea of a complete Islamic concept, namely rahmatan lil'alamin (prosperity for all nature) into their daily behavior. To achieve this goal, it is necessary to equip students with contextual sciences related to the environment which will be a means of forming human resources who have the knowledge, attitudes, skills, motivation, and commitment to contribute to solving environmental problems.

Considering the various problems related to the environment, the government strives and is fully committed to protecting and preserving the environment from damage through the education sector. The Adiwiyata (Green School) Program is an effort of the Government through the Ministry of Environment (KLH) in collaboration with the Ministry of Education and Culture (Kemendikbud) which aims to support the protection and management of the environment in schools. The Adiwiyata program has Adiwiyata indicators, which are a set of criteria used to assess and encourage schools in Indonesia to become more caring and environmentally friendly, including environmentally sound school policies, implementation of an environmentally based curriculum, participatory-based activities, and management of environmentally friendly school facilities. Especially for students, the Adiwiyata program is useful for fostering a sense of love, care, and a good culture towards the environment and students can understand the urgency of environmental conservation.

The results of preliminary observations in the environment of Insan Kamil Nature School Gowa Regency and interviews with several school residents, one of whom was Mr. Muhlis, S.Pd.I (Class Teacher at Insan Kamil Nature School) obtained information that there have been efforts to make this Natural School into a green school by trying to meet the indicators as a green school. However, there are several obstacles faced in fulfilling green school indicators, including the absence of a strong commitment in the form of policies in implementing green school programs. Insan Kamil Nature School has implemented environmentally friendly policies through its vision, mission, and goals, but is limited by financial resources and support from the government or other relevant parties. Some learners, teachers, and staff do not have sufficient knowledge about the importance of environmental policies, making their implementation less effective. Although the policy has been implemented, participation from the whole school community (learners, teachers, staff, and parents) is often less than optimal. This could

be due to a lack of awareness or a sense of responsibility.

Another obstacle is the integration of environmental topics into existing subjects, including the lack of teacher competence in integrating environmental topics into subjects. This is also due to the lack of training for teachers to improve their understanding of environmental issues and how to teach them. Insan Kamil Nature School also faces several obstacles in environmental activities that involve the participation of the entire school community, especially in terms of limited funds, facilities, and trained human resources to support environmental activities that involve active student participation. The lack of awareness and support from the community around the school is also an obstacle because the success of participatory programs is highly dependent on the support of the community around the school. Lack of awareness or interest from parents, residents, or authorities is also an obstacle.

Another obstacle is the high cost of environmentally friendly school facilities or infrastructure. As nature schools operate on a limited budget, it is difficult to allocate funds for the construction or maintenance of environmentally friendly facilities. Lack of awareness and knowledge means that not all teachers, staff, students, or parents at Insan Kamil Nature School have sufficient understanding of the importance of environmentally friendly infrastructure. This hampers the school's efforts to implement sustainable programs or make optimal use of existing facilities.

Insan Kamil Nature School carries a vision and mission of environmental insight. The vision of Insan Kamil Nature School is to produce a generation of *rahmatan lil'alam* with one of the school's missions, which is to make students love the environment. Insan Kamil Nature School is expected to meet the criteria/indicators for green schools. This vision and mission is certainly a direction for schools in learning activities at school as a form of environmental conservation efforts. Natural schools are expected not only to make the natural environment a place and source of learning but also every student and other school residents are embedded with attitudes, knowledge behavior, and environmental insight so that they can be involved in school activities towards a healthy environment and avoid negative environmental impacts and take responsibility for efforts to save the environment and sustainable development.

The management of natural schools is interesting to study more deeply related to the management of Insan Kamil Natural School which is not necessarily the same as the concept of Green Schools or Green Schools because green schools are not only seen in the physical appearance of schools full of green trees or shady trees, or learning carried out in the environment outside the classroom alone but a form of green school is a school that has educational programs and activities that lead to awareness and wisdom towards the environment. Therefore, researchers will examine more deeply the programs, educational activities, and commitment of Insan Kamil Nature School in developing programs that characterize the school to internalize the values of caring and environmental culture into all school activities that support the realization of the school's vision and mission in producing a generation of *rahmatan lil'alam*.

In this study, the researcher relied on the Environmental Education policy between the

Minister of Environment and the Minister of National Education No.03/MenLH/02/2010, No.01/II/KB/2010 dated February 1, 2010 on Environmental Education through the Adiwiyata program. An agreement that was decided based on several important considerations, namely: to preserve the function of the environment and prevent pollution and/or damage to the environment. Sustainable development requires human resources who are aware of and able to maintain the preservation of environmental functions, and knowledge, values, attitudes, behaviors, and insights about the environment need to be given early to all levels of society and students in all units, pathways, levels, and types of education.

Based on the background that has been stated previously, the green school program based on the environment needs to be carried out at Insan Kamil Nature School, so researchers consider it very important and interesting to study more deeply about realizing green schools at Insan Kamil Nature school with a conceptual model.

## **METHOD**

This research is a descriptive qualitative research. This research was conducted at Insan Kamil Nature School, Gowa Regency. The reasons for choosing Insan Kamil Nature School, Gowa Regency Gowa Regency as a research site are: (1) Insan Kamil Nature School Kabupaten Gowa wishes to become an adiwiyata school (green school) and (2) this research received support from Insan Kamil Nature School Kabupaten Gowa to realize a green school. This research uses a phenomenological approach. The primary data in this study is the school community at Insan Kamil Nature School, Gowa Regency. The Principal and Vice Principal, teachers, students, education personnel, and other officers at Insan Kamil Natural School, Gowa Regency are the primary data sources that will be observed and interviewed to collect data on the focus of the problem in the study. The secondary data in this study are books or documents related to the research theme, especially school documents (Insan Kamil Nature School Kabupaten Gowa) related to school policies in environmental management. Data collection techniques are observation, interview, documentation study, and Focus Group Discussion (FGD). The data analysis techniques used in this research are data reduction, data presentation, data interpretation, and conclusion drawing.

## **RESULTS AND DISCUSSION**

### **A. Green School / Adiwiyata School (Green School)**

Some well-known terms that are often used interchangeably to refer to the same thing are green school, healthy school, and sustainable school. These three terms are often used by many researchers and experts. However, some principles are often used to define green schools, namely: protecting the environment, reducing operating costs, improving the health and quality of the learning environment, and integrating learning opportunities with the environment (ZAS Architects Inc. and Halsall Associate, n.d.). Gordon mentions that green schools are built systematically and thoughtfully to provide clean and fresh air conditions, comfortable temperature ranges, abundant lighting, and minimal noise disturbance. According to him, green schools are schools that optimize resource



efficiency, minimize pollution, and educate students about the importance of innovation in the environment (Gordon & Aia, 2010).

According to Kats, Perlman, & Jamadagni, green schools have various benefits such as saving energy costs, reducing emissions, water and wastewater, health benefits, benefits as a learning medium, and financial benefits. Green schools are believed to provide 20 times greater financial benefits than conventional schools (Greg Kats, Jeff Perlman, 2005). According to Kats, green schools cost 2% less than conventional schools in America. This is because green school design allows schools to make tremendous cost savings to improve learner learning and reduce health operational costs which in turn can improve the quality of schools and their competitiveness in the global arena until schools become more competitive (Kats, 2006). Gordon mentions that green schools allow learners to learn in a healthier indoor environment and help schools save energy and water. In line with similar studies, his research shows that green schools also save money on operational costs. Lower targeted costs for operational needs and building maintenance allow green schools to allocate more adequate funds for teacher salaries, equipment purchase costs, and school activities (Gordon & Aia, 2010).

Some studies compare energy use by green schools and conventional schools. Kats' research found that green schools use 33% less energy on average, due to more efficient lighting, optimization of natural lighting and sensors, more efficient use of heating and cooling systems, and well-insulated walls and roofs that result in more stable temperatures. (Greg Kats, Jeff Perlman, 2005) Regarding the operational efficiency of natural schools, the National Research Council in the United States states that green school design can reduce water use by an average of 32%. This saves on school building costs, reduces pollution, lowers infrastructure and maintenance costs, and lowers the cost of transporting and treating wastewater (Council et al., 2006).

The US Green Building Council (USGBC) has also researched the benefits of sustainable or green schools. There is a wide range of benefits that can be derived from green schools, from impacts on learner health, test scores, and teacher retention to reduced operational costs (USGBC. Green Schools 101: Why Green Schools? 2008). Improved facilities that are directly related to improved learner performance include additional lighting, improved indoor air quality, improved classroom acoustics, and comfortable and consistent indoor temperatures. Green schools themselves also serve as learning tools - showing learners, teachers, and parents practical ways to tackle global warming while creating a healthier, more efficient, and less expensive learning environment.

The Center of Green School under the US Green Building Council mentions some general characteristics of green schools that have been formulated by the Center of Green School under the US Green Building Council, namely:

- a. Saving energy and natural resources.
- b. Improving indoor air quality.
- c. Removing toxic materials from where learners learn and play.
- d. Employing lighting strategies and improving classroom acoustics.
- e. Reducing municipal water loads and wastewater treatment.

- b. Encourage waste management efforts that can benefit local and regional communities.
- c. Conserve fresh drinking water and help manage stormwater flows.
- d. Encourage recycling efforts.
- e. Promote habitat protection.
- f. Reduce demand on local landfills (USGBC. Green Schools 101: Why Green Schools?, 2008).

In developing its various programs and activities, green schools operate concerning basic norms and livelihoods which include, among others: togetherness, openness, honesty, justice, and preservation of environmental functions and natural resources (Adiwiyata Team National Level, 2011). In Indonesia, the green school program is called the Adiwiyata program. Adiwiyata School is one of the programs of the Ministry of Environment and the Ministry of Education and Culture to encourage the creation of knowledge and awareness of the school community in environmental conservation.

Adiwiyata school is defined by the National Adiwiyata Team as a good and ideal place where all knowledge can be obtained and various norms and ethics can become the basis for humans towards the creation of life welfare and the ideals of sustainable development. Adiwiyata School is aimed at realizing school citizens who are responsible for environmental protection and management through good school governance, and this is expected to support sustainable development (Adiwiyata Team National Level, 2011).

The main activity of the Adiwiyata program is to create schools that have responsibility, commitment, and concern and instill an environmental culture in primary and secondary schools in Indonesia. This is related to the hope that every development of science and technology can be reviewed for planning and implementation to balance the carrying capacity of the environment (Adiwiyata Team National Level, 2011). The Memorandum of Understanding (MoU) between the Minister of Environment and the Minister of National Education on June 2, 2005, is a response to the dynamics of environmental development and to increase knowledge, insight, and a good understanding of the environment to students and the community.

To realize the implementation of green school programs, the Adiwiyata National Team (Adiwiyata National Team, 2011) formulated two (2) basic principles that must be implemented by schools, namely:

- a. Participatory. The participatory principle indicates that each school community plays a role in school management related to the environment which includes the entire process of planning, implementing, and evaluating green school programs by their respective responsibilities and roles. It can be interpreted that the green school program will be very difficult to realize if there is no comprehensive participation from each school community.
- b. Sustainability. The principle of sustainability means that all activities must be carried out in a planned and continuous comprehensive manner. The implementation of programs carried out sustainably is intended to harmonize natural and human resources in overall development.



Based on the literature review, it can be concluded that a green school is an ideal school to be able to create a healthy and conducive environment for learning, as well as to save energy, resources, and school costs. Green schools, which are described as green or cool because of the many trees growing in the schoolyard, seem to be an indicator that green schools are only limited to the physical appearance characterized by trees and green plants in schools. But more than that, green schools are schools that have a strong commitment to environmental issues, schools that have educational programs and activities that direct students to have full awareness, concern, and be wise (awareness and wisdom) towards the environment. Green school is a school that has a commitment and systematically develops certain programs to internalize environmental values into all school activities.

### **Adiwiyata Program**

The implementation of the Adiwiyata program is mandated by Indonesian Law No. 32 of 2009 concerning Environmental Protection and Management. Article 65, clause 2, states that "everyone has the right to environmental education, access to information, access to participation, and access to justice in fulfilling the right to a good and healthy environment." (Law of the Republic of Indonesia Number 32 of 2009 concerning Environmental Protection and Management, 2009). Following up on this law, Minister of Environment Regulation No. 02 of 2009 was issued, providing guidelines for implementing the Adiwiyata Program, later refined into Minister of Environment Regulation No. 05 of 2013 on Guidelines for Implementing the Adiwiyata Program. With the issuance of Minister of Environment Regulation No. 05 of 2013, the legal basis and rules for implementing the Adiwiyata program should ideally have been implemented in all educational institutions/schools in Indonesia.

As previously explained, the Adiwiyata (green school) program in Indonesia was initially initiated by two ministries: the Ministry of National Education and the Ministry of Environment in 1996, with the introduction of environmental education (PLH) in formal education levels, supported by several laws and regulations. The first cooperation agreement between the Ministry of National Education and the State Ministry of Environment on environmental education (PLH) in Indonesia was initiated in 1996 and then renewed in 2005 and 2010. In 2006, the Ministry of Environment developed the PLH program at the primary and secondary education levels through the "Adiwiyata Program" as a follow-up to the 2005 agreement. The Adiwiyata program was first implemented on the island of Java, involving various stakeholders, including government agencies, universities, and NGOs involved in environmental education (National Adiwiyata Team, 2011).

### **Efforts to Realize a Green School at Insan Kamil Nature School with a Conceptual Framework (Model)**

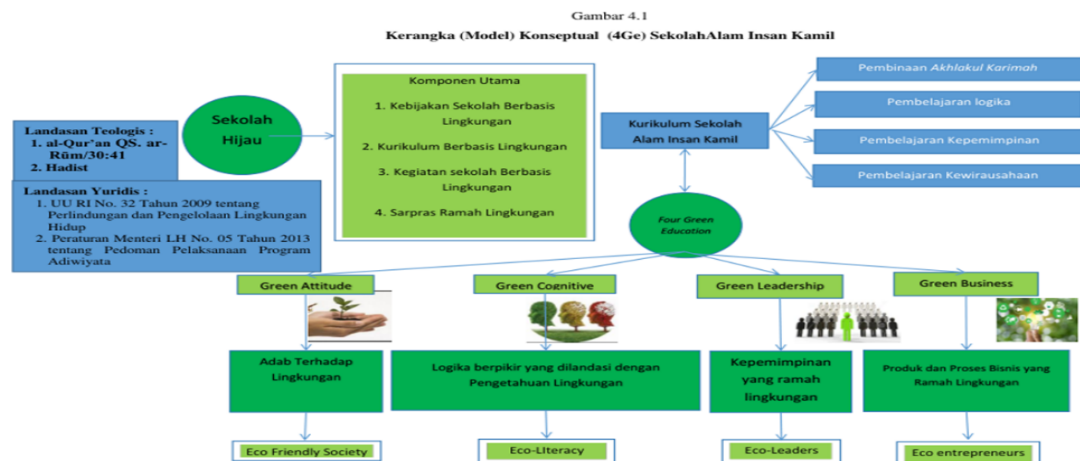
To realize a green school at Insan Kamil Nature School, many aspects must be fulfilled by the school and must involve the participation of all school members. Implementing a green school is a comprehensive process and becomes the responsibility of all school members, making it an integral part of the overall school development program, whether

integrated into school policies, curriculum development, school activities, and importantly, in the development of school facilities and infrastructure. Therefore, implementing a Green School at Insan Kamil Nature School needs to be refined with the design of a conceptual framework (model) that can be used by Insan Kamil Nature School Makassar.

A conceptual framework, often referred to as a hypothetical model, is a conceptual model that shows the logical relationships between identified factors/variables. The conceptual framework is built based on existing theories and previous research documents, integrating them into a cohesive whole. A conceptual model is a diagram of a set of relationships between specific factors believed to impact or lead to a target condition. Creating a good conceptual model involves analyzing certain events, situations, attitudes, beliefs, or behaviors that influence other situations, ultimately resulting in an impact. (Sinulingga, 2014).

It can be concluded that a conceptual or hypothetical model is a model design developed by researchers based on studied theories and findings from field research and development. It is hoped that this designed framework (model) based on findings, theories, and previous research studies will contribute to solving problems and overcoming challenges in implementing a green school at Insan Kamil Nature School Makassar.

Below is the diagram of the conceptual framework (model) for the Green School at Insan Kamil Nature School, designed based on theoretical studies and research findings discussed earlier.



## The Four Main Components of a Green School

The diagram above outlines the four main components of a Green School, which are the standard elements that every school must fulfill to achieve a green school (Adiwiyata). These four main components include a. Environmentally Conscious School Policies b. Implementation of Environment-Based Curriculum c. Application of Participatory Environment-Based Activities d. Management of Environmentally Friendly School Facilities and Infrastructure (National Adiwiyata Team, 2011).

To fulfill these four main components as an effort to realize a green school at Insan Kamil Nature School, the curriculum and learning activities at Insan Kamil Nature School must align with the main components of a green school, relying on the four pillars of Insan Kamil Nature School's curriculum, which are: a. Development of Morals, through the method of role modeling. b. Development of Logic, through the action learning method (learning with nature). c. Development of Leadership Qualities, through 'outbound training' methods. d. Development of Entrepreneurship by building a business mindset through internships and learning from experts.

These four distinctive curriculum pillars of Insan Kamil Nature School form the basis for creating a conceptual framework (model) that encompasses policies, programs, and learning activities supporting the realization of a green school at Insan Kamil Nature School. This conceptual framework is named 4 Green Education (4Ge) or 4 Pillars of Green Education, which includes the following elements:

### **1. Developing a Green Attitude among School Members**

Research findings indicate that one of the crucial factors determining the success of implementing a Green School at Insan Kamil Nature School is the attitude and behavior of the school community toward the environment. While the leadership, teachers, and students have shown positive behavior toward environmental conservation and sustainability, it has not been fully realized in their daily habits. Green attitude can be understood as actions or behaviors that can be performed to prevent environmental damage. This green attitude aligns with the first pillar of Insan Kamil Nature School's curriculum, which is the development of moral character. The expected outcome at this stage is the creation of an Eco-Friendly Society, where all school community members are fully committed to preserving the environment.

The main activity that can be done to develop a green attitude at Insan Kamil Nature School is related to a shared commitment to waste and waste management within the school environment.

#### **a. Waste Management through the Integration of Waste Management into the Curriculum, Utilizing Waste Banks, 5M, and 6M**

According to San Jose, educational institutions play an important role in waste management, even integrating waste management for a healthy school into the curriculum so that students become more disciplined in fulfilling their responsibilities as responsible citizens. To integrate waste management content into the curriculum, the school can initiate the collection and management of waste into projects as part of strengthening the Pancasila Student Profile (P5) in the Merdeka Curriculum, for example, under the theme of Sustainable Lifestyles with the topic "My Waste is My Responsibility," where students must collect and sort organic and inorganic waste to be turned into projects. (San Jose, 2021)

The school must also prepare adequate waste disposal facilities and distribution. One of the waste disposal distribution techniques considered effective is through Waste Banks. Pratiwi and Yasin have conducted research where the results showed that solutions in

addressing pollution and protecting the environment based on schools through the optimization of Waste Banks in Adiwiyata schools were effective and could be one of the means towards environmental care education. The optimization of Waste Banks is carried out through four stages: collecting student waste, storing waste with waste management officers, sorting waste, and coordinating waste at the National Waste Bank (Pratiwi & Yasin, 2022).

The effectiveness of waste banks was also studied by Ulfah et al., who noted that the establishment of waste banks as an approach to waste management in schools, particularly in high schools in their research, showed effective results. Waste bank schools aim to manage and sort organic and inorganic waste. Customers were able to utilize waste according to its type, frequently collected waste at school, save according to weighing schedules, usually conducted regularly at least once a week, understood that school waste banks had record books for waste weighing, waste sales, and waste records managed by the staff, schools had special places for waste weighing, provided a place to collect weighed waste, which was then sold, and had scales, and knew the basic concept of waste banks, which are the 5M: Reducing waste, Sorting waste, Utilizing waste, Recycling waste, and Saving waste (Ulfah et al., 2016).

After the 5M, an additional innovation called 6M was introduced by Irawati, as a model for proper and environmentally friendly waste management efforts to create clean and green urban areas. The 6M program is a household waste management effort that can be applied to residential areas, shops, markets, public facilities, industries, and health services such as hospitals or clinics, and other public facilities. The 6M consists of reducing, reusing, replacing, separating, recycling, and composting (Al Muhdhar, 2011).

Regarding this, Pratama, in his research, described the approaches and technologies for waste management to address waste problems in schools: composting technology, independent waste management, waste recycling, bioethanol technology, introducing students to how to identify waste based on its characteristics, and seeking assistance from the government and companies to provide trash bins (Pratama, 2015).

#### **b. Waste Management through Integration into the Curriculum and Waste Processing Education in the School Environment**

Waste processing can be integrated into the curriculum in at least two ways: through co-curricular activities in the science subject using project-based learning, and through intra-curricular activities in P5P2RA. Astuti conducted research on student creativity in waste processing into trash fashion through project-based learning at a vocational school. She noted that creating trash fashion is a tangible demonstration of students' environmental awareness, fostering creativity, and enhancing skills in processing waste into artworks that have both artistic and economic value, potentially opening business opportunities (Astuti, 2015).

Schools can also initiate waste management by processing it into organic fertilizer, which can be one of the topics undertaken in the Pancasila Student Profile Strengthening Project (P5) in the Merdeka Curriculum. This project, carried out by students, can be aimed at

providing basic knowledge about the types of waste that can be used as organic fertilizer, imparting a fundamental understanding of organic fertilizer and its benefits, and providing training on how to make organic fertilizer. This approach was taken by Syamsiah et al., but it was applied to teachers in the Biology Teacher Group (MGMP) in Selayar Regency. Raising awareness of waste management in schools must indeed be a commitment of the entire school community, starting actively with teachers who can then pass this knowledge on to students (Syamsiah et al., 2023).

Education on waste processing also needs to be carried out by schools, particularly in managing waste smartly around the school environment. According to Manzano-Abdon, the emphasis on solid waste management in the modern era is on the reduction, reuse, and recovery before disposal. These three aspects, he argues, are the focus of various integrated waste management systems in Asian countries (Manzano-Abdon & Nalupa-Farin, 2022).

The development of a more detailed Green Attitude can be carried out through the following activities:

**Table. Implementation of Green Attitude Development in Green Schools**

<b>NO</b>	<b>DEVELOPED GREEN BEHAVIOR</b>	<b>COACHING AND DEVELOPMENT ACTIVITIES CARRIED OUT</b>
<b>1</b>	Protecting the environment from damage	The program is to plant a thousand trees in the school area and reduce the use of plastic.
<b>2</b>	Maintaining the environment (conservation)	Waste management through integration of waste management into the curriculum, utilization of waste banks, 5M and 6M Waste management through integration into the curriculum and waste management education in the school environment.
<b>3</b>	Use energy sparingly according to your needs	The use of LED lights in office and classroom spaces, reducing excessive use of paper, replacing disposable drinking bottles and food containers with tumblers and food containers, saving water and electricity in the school environment, encouraging people to use bicycles and walk short distances, and using public transportation for both teachers and students.

### **c. Enhancing Green Cognitive Skills in Learning and Co-Curricular Activities**

Based on observations at Insan Kamil Nature School in Gowa Regency, it was found that the school's knowledge, particularly related to green school concepts, is at a fairly good level. However, only some teachers and students are well-versed in the green school concept, while others are still uncertain or have never heard of it. To build a green school, a school must possess green cognitive knowledge as a fundamental prerequisite. Green

cognitive, or environmental knowledge, is the basic understanding individuals have about how to protect the environment to ensure its sustainability. As mentioned by Hanjani & Widodo, green cognition, often referred to as green knowledge, is necessary for society to understand products or activities that can impact the environment by educating people about current issues and phenomena, the effects of using environmentally friendly products, and the benefits of using products with a green brand label (HANJANI, 2019).

Regarding the importance of incorporating environmentally conscious knowledge into the curriculum, Abdullah and Halim (2010) stated, *"To overcome this problem, environmental knowledge should be given to people through programs or activities that demonstrate the benefit they get by taking action towards awareness of environmental preservation and conservation. This is because the benefit to oneself is essential for most people's awareness of environmental issues to be translated into action on them. Therefore, environmental education needs to be improved so that environmental knowledge can be offered more effectively."* They argue that environmental knowledge should be delivered through programs or activities that clearly show the benefits of the actions taken, as these perceived benefits are crucial in motivating awareness and action on environmental issues (Abdullah & Halim, 2010).

The internalization of green knowledge is incorporated into the curriculum at Insan Kamil Nature School, known as the Environmental Awareness Curriculum (Kurikulum Berwawasan Lingkungan, KBL), through three procedures:

**Table. Implementation of Environmentally Conscious Curriculum in Green Schools**

NO	LEARNING	FORM OF ENVIRONMENTAL INSIGHT INSERTION	IMPLEMENTATION IN LEARNING
1	Co-curricular	Integration of environmentally aware curriculum into co-curricular learning in the subjects of Science, Social Studies, and Islamic Religious Education	1. Science, Social Studies and Islamic Religious Education subject teachers work together to develop local and global issues about the Environment as learning materials that are adjusted to the essential materials of each subject according to the level of education. 2. Teachers prepare learning plans that integrate environmental insight content for both in-class and out-of-class activities. 3. Involvement of parents of students and the community in environmental insight learning programs. 4. Communicating the results of environmental insight learning



			innovations. The results of learning innovations are communicated through wall magazines, school bulletins, exhibitions, websites, radio, TV, newspapers, and journals.
2	Intracurricular	Integration of Environmentally Conscious Curriculum into intracurricular learning content in the Pancasila Student Profile Strengthening Project (P5) by promoting sustainable lifestyle values.	The form of activities in the Pancasila Student Profile Strengthening Project (P5) with the theme of Sustainable Lifestyle is carried out in the following ways: <ol style="list-style-type: none"> <li>1. Waste management activities, namely processing organic waste into compost and plastic waste into ecobricks.</li> <li>2. Socialization of plastic diet, namely reducing the use of plastic by bringing your own drinking bottles and shopping bags.</li> <li>3. Tree planting activities in the school environment to maintain environmental sustainability.</li> </ol>
3	Extracurricular	Insertion of environmental insight material into relevant extracurricular content such as scouts, KIR (Youth Scientific Work), and Science Club, as well as the formation of the Adiwiyata Extracurricular.	Adiwiyata extracurricular activities, which are participatory-based environmental extracurricular activities in schools that aim to encourage the creation of student knowledge and awareness in environmental conservation efforts, include the following activities: <ol style="list-style-type: none"> <li>1. Learning about managing school hydroponic gardens,</li> <li>2. managing school nursery gardens,</li> <li>3. learning about waste recycling.</li> </ol>

The internalization of green knowledge aligns with the curriculum pillar of Insan Kamil Nature School, which focuses on developing logical thinking. Green knowledge is expected to support the main component of a Green School, which is an environmentally-based curriculum at Insan Kamil Nature School. The expected outcome of this stage is the establishment of eco-literacy within Insan Kamil Nature School in Gowa Regency. Eco-literacy refers to a state where individuals are aware of and understand the importance and high value of the environment. Eco-literacy aims to create a Sustainable Community, a community that recognizes the significance of environmental values. At

this stage, members of the school community have reached a high level of awareness regarding the importance of the environment.

## 2. Enhancing Green Leadership in School Leadership Performance

Research findings indicate that green leadership at the school leadership level still needs improvement. Green Leadership is a model that internalizes the spirit and awareness of environmental care in daily school life. To realize a Green School, the school must have environmentally conscious leadership that is socially and ecologically just. This means that any activity carried out in the school should benefit the environment to foster and enhance sustainable environmental management. Sustainability is expected to be a serious consideration in various school policy-making and decision-making processes that involve environmental aspects. Achieving sustainability as a strategy requires school leaders who embody green leadership.

Sustainability is strongly supported by the school's vision, mission, and goals as a form of commitment and effort to support environmental preservation. The contribution of Green Leadership to environmentally aware school policies is expected to play a significant role in realizing a Green School at Insan Kamil Nature School. According to Vizano's research, transformational green leadership positively influences green organizational identity, leading to the promotion of green creativity within the organization (Vizano et al., 2020)

**Table. Implementation of Green Leadership in Green Schools**

No	Developed Aspects of Green Leadership	Development Activities Carried Out
1	Environmental education at the leadership level.	Involving leaders in environmentally aware activities, seminars, and training related to environmental sustainability management.
2	Environmentally aware curriculum	Cooperation between the Principal, Deputy Principal for Curriculum, and teachers to formulate an environmentally aware curriculum.
3	Environmentally conscious school management	Allocation of the school budget for the environment and increased commitment to decision-making related to environmental impacts.

Green leadership aligns with the curriculum pillar of Insan Kamil Nature School, which focuses on leadership and is expected to support the main component of a Green School, namely environmentally conscious school policies at Insan Kamil Nature School. Leadership within this conceptual framework focuses on school management, particularly the Principal, but this green leadership will influence the entire school community, leading to the emergence of other green leaders among teachers and students. At this stage, the output is the development of Eco-Leaders, leaders with a high level of

awareness and commitment to environmental conservation efforts within the school environment, including principals, teachers, and students.

### **3. Implementing Green Business in Various School Activities**

One of the environmentally-conscious theoretical approaches that also needs to be implemented by a Green School is the practice of green business. Green business practices broadly aim to create a sustainable business cycle and have an ecological impact on the environment. Green business can be defined as a business concept that considers economic, social, and environmental aspects. Schools that have implemented Green Business will focus on reducing the environmental impact of school activities on the community, and local and global environments, such as reducing fuel usage, waste management, and other related activities.

Green business, as an environmentally friendly business concept, must be supported by green attitudes. According to several studies, green attitudes positively influence consumers' purchase intention towards environmentally friendly products and have a positive and significant effect on the intention to buy green products. If customers are environmentally conscious, it significantly impacts their purchase intention of a product (Irindust & Bamdad, 2014). Consumers with a positive green attitude are more likely to intend to purchase environmentally friendly products.

Green business, also known as sustainable business, aims to minimize negative environmental impacts by reducing waste, conserving resources, and using clean energy sources. This includes efforts to reduce negative impacts on the environment, improve the well-being of surrounding communities, and promote the use of environmentally friendly resources.

According to Mutamimah, as cited in Mutamimah and Siyatimah, Green business is a business activity that transforms inputs (raw materials and supporting materials) into outputs (goods and services) while prioritizing the balance between economic, social, and environmental benefits. Schools should implement Green Business by adopting sustainability principles in every decision that impacts the environment, producing and using environmentally friendly products or services, and committing to sustainability by applying environmental principles in all their activities (Mutamimah & Siyatimah, 2012). Activities that can be undertaken within Green Business at a Green School include the following:

**Table. Green Business Implementation in Green Schools**

<b>No</b>	<b>Business units created/involved</b>	<b>Green Business Activities</b>
1.	School Market	Provision of healthy canteens and sales of organic processed foods such as juices, bread, biscuits, and snacks made from organic ingredients.
2.	School cooperative	Sales of Environmentally Friendly Products (Green Products) such as soap, cosmetics, and household products made from organic materials.

3.	School waste bank	School waste management and recycling businesses can include the collection of plastic bottles, paper, cardboard, and metal.
4.	School Garden	Establishing a school garden or small farming area can provide many educational and environmental benefits. Students can learn about sustainable farming techniques, plant life cycles, and the importance of local foods. School gardens can also provide fresh food for school cafeterias, reducing reliance on mass-produced and shipped products.

Green business aligns with the curriculum pillar of Insan Kamil Nature School, which emphasizes entrepreneurship. Green business is expected to support the main components of a Green School, including participatory environment-based activities and the management of environmentally friendly infrastructure at Insan Kamil Nature School. The output of this stage is the emergence of eco-entrepreneurs, both among teachers and students. Emphasizes the precautionary principle - taking action to avoid potentially serious or irreversible environmental or social harm, even when scientific knowledge is incomplete or inconclusive (Brown, C., & Green, 2012). From the previous explanations, it can be concluded that there are 7 principles of sustainable development: (1) economic principle, (2) social principle, (3) religious principle, (4) participatory principle, (5) transparency principle, (6) accountability principle, and (7) precautionary principle.

## CONCLUSION

To realize a green school at Insan Kamil Nature School, four main components of a green school must be met. Therefore, the curriculum and learning activities at Insan Kamil Nature School must align with these core components by relying on the four pillars of the school's curriculum: moral development, logical thinking, leadership, and entrepreneurship. These four distinctive curriculum pillars serve as the foundation for creating a conceptual framework that includes policies, activities, and learning programs supporting the establishment of a green school at Insan Kamil Nature School. This conceptual framework is named "4 Green Education (4Ge)" or the Four Pillars of Green Education, which include the following elements: a. Developing a Green Attitude among the school community, b. Enhancing Green Cognitive skills in learning and co-curricular activities, c. Strengthening Green Leadership in School Leadership Performance, d. Implementing Green Business in various school activities.

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