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UIN Walisongo Green Campus Study: Implementation of Education Readiness in the Faculty of Science and Technology

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ABSTRACT

This study investigated the level of readiness and any difficulties to developing a green campus at UIN WALISONGO, especially in the field of education. This mixed-method study requires data on both processes and outcomes. The information was a grade for faculty preparation in education according to UI Green Matric standard, and limitations in the faculty environment towards the green campus. The preparedness score was 3.6. level 3 means the faculty is ready but must solve various issues. Obstacle to developing a green campus include the absence of fair distribution of socialization from faculty to various levels and a lack of sustainability courses in most study programs. The faculty lacks a sustainability group that work under the dean. The faculty hopes to green the campus by maximizing the academic community.

Keywords:
Education, Green Campus, Readiness Level, Sustainability

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INTRODUCTION

Higher education is the highest educational institution that plays a vital role in seeking a sustainable future (Mcmillin and Dyball, 2009). Universities have increasingly considered improving campus sustainability in campus governance, curriculum (UN, 2018), even research and community service in recent years. Higher education is the prominent place to address global problems (global warming) and encourage progressive action in the present and future generations through research, innovation, and education (Finlay and Massey, 2012). Research and academics have opened and developed to include an interdisciplinary curriculum that involves the three pillars of sustainability, namely environmental, social, and economic (Gibson, 2006).

According to UI Green metric, the green campus program (Green Campus) provides a comfortable, clean, and shady (green), beautiful and healthy campus environment. A campus full of green trees is not a principle in environmental preservation. Nor is it a green alma mater jacket or a green painted building, but more profound in terms of the extent for campus community can utilize existing resources efficiently and effectively, both in the use of paper, stationery, electricity, water, land, or land, or waste management, and other things (Zulkifli, 2012).

What needs to be done to achieve a green campus is sustainable and environmentally friendly campus management. Global issues such as climate change, environmental pollution, and the reduction of vacant land are some of the fundamental problems surrounding us, including campus life. The green campus has a characteristic of an environmentally conscious campus and practices environmental management systematically and consistently. The Green Campus results from the participation of the entire campus academic community focusing on health and environmental issues (Notoatmodjo, 2010). Achievement for an ideal proportion of Green Open Space, the availability of friendly environmental buildings, maintaining cleanliness and ecological comfort, realizing a smoke-free and pollution-free campus, and providing environmental education for students are all policies directed at environmental management (Gea, 2016). Concrete and ongoing, not just ceremonial, actions are needed to achieve these highly detailed indicators. Therefore, changing the attitude and perspective of the entire academic community in responding to this matter appropriate is the first step.

Walisongo Eco Green Campus is a campus that claims to have a high dedication to fostering a culture of increasing energy use, conserving resources, and preserving the environment by educating people about how to live a healthier life and a good learning environment according to what is written on the website wegreen.walisongo.ac .id. This program is reinforced by the Rector's Decree/Regulation regarding Smart & Green Campus. For example, Decree of the Chancellor of Environmentally Friendly Campus Management and Regulations on Smoking Prohibition in Campus Environments. Although in practice, there are still many campus community members who still smoke in the campus environment.

This Eco Campus program is one of the preparations for universities to face the Green Campus. This program has many principles that need to be considered, one of which is a change in the mindset or thinking patterns of Human Resources on campus to cultivate a healthy and environmentally conscious life (Busaeri, 2020). This program also has the objective of managing natural resources such as water and protecting the environment. This program can happen because several environmental problems have emerged. It is necessary to

apply the concept of a green campus or Eco Campus, which can answer all ecological issues. Environmental issues have become an important issue and need to be considered at this time. Ecological aspects are the basis for carrying out the development process. In line with that, as stated by Dornfeld in (Dalulia and Widiasih, 2015), the concept of green manufacturing has become an important issue in recent years. Danger can happen because if you continue to use energy resources without anticipation or efforts to reduce their use, then one day, it will have the effect of losing natural resources.

To be a sustainable and green campus is a commitment that all stakeholders on campus must obey because the system on campus is complex and varied and depends on each other (Suryani, 2019). Because campuses have these characteristics, programs that are integrated are needed. The design on campus needs to integrate science (educational aspects), social elements, sources and use of energy, transportation, interaction, and so on (Wiwin Widiasih, 2019). Based on the 2020 curriculum at the Faculty of Science and Technology, there has not been much support for this eco campus program, considering the lack of supporting courses for this green campus. A green campus is not only meant that a green campus or college must be a comfortable, clean, beautiful, and healthy place. On the other hand, the Green campus helps improve the academic achievement of each department at a university by directly implementing the concepts or theories of courses that have been obtained from lecturers through optimal utilization of university resources (Hudaini, 2011).

It explained above that environmental awareness from all elements of the campus is needed to maintain and develop a green campus. Education is one of the categories in the green campus assessment, where this education factor distinguishes between green campus and green building (Shima, 2016). Green campus is a term used to describe a campus that cares about the environment and uses green infrastructure as a counterweight. Unfortunately, the many available vacant lands are often neglected because the campus academic community overlooks them. The number of students encountered, they are more comfortable in the room than outside because they feel hot outside the room. The learning environment, especially the study room, feels hot, so they are not comfortable studying in a space that feels hot. Even though the involvement of all elements of campus is needed to preserve an ideal green campus, the great benefits of a green campus will be handled by the campus residents themselves.

Establishing the Eco Campus program at UIN Walisongo does not make all faculties under UIN immediately ready by themselves. Therefore, measurements are needed to determine the level of readiness of each faculty at UIN Walisongo, especially the Faculty of Science and Technology. A Green Metric World University ranking measurement requires every faculty to increase their willingness to follow the ranking system. Each faculty can measure the ongoing efforts that have been made and compare them with other faculties. The measurement is expected to produce campuses and generations who are more concerned about the environment. In practice, the UI ranking system is used by following the existing campus conditions on sustainable issues in general, so you can still use this standard to measure the level of campus achievement (Ani, 2015).

For the sake of creating a green campus implementation at UIN Walisongo in general and the Faculty of Science and Technology in particular, it is necessary to measure the level of readiness of the faculty to be at the level of very ready, ready, not prepared, or not prepared (Aydin, 2005). Identification is carried out on existing conditions with ideal conditions based

on the WeGreen UIN Walisongo standard in an annual activity called "WeGreen Faculty Award." This activity aims to determine sustainable business achievements at the UIN Walisongo Semarang campus, which has declared itself an environmentally friendly campus. In this activity, an assessment was carried out by the WeGreen UIN Walisongo team on all faculties based on the UI Green metric assessment category, whose scale was adopted for use at the faculty level. The benefits obtained from the WeGreen Faculty Award activities are to increase the academic community's awareness about sustainable issues, as well as fundamental changes and social actions related to environmental problems.

This study will concentrate on the ED category at the Faculty of Science and Technology. It is hoped that it will facilitate campus residents in planning strategies to face the challenges faced in implementing the WeGreen program by comparing current conditions with ideal conditions based on criteria in the ED category. The questions are: How is the level of readiness of the Education and Research (ED) category based on the unity of science in the implementation of the Green Campus and the obstacles found in the Faculty of Science and Technology towards the performance of a Green Campus in the Education and Research (ED) category.

METHODS

Type of Research

This research is mixed-method research. This research requires data both in terms of processes and outcomes that have been produced. According to (Masrizal, 2011), a mixed-method can be used as a method to see program evaluation.

Time and Place of Research

This research was conducted at the Faculty of Science and Technology UIN Walisongo from 17 June to 30 August 2021.

Population and Sample

The population used is all lecturers, education staff and students at the Faculty of Science and Technology. The sampling technique used purposive sampling. The questionnaire includes three questions regarding the identity of the respondents, questions about respondents' knowledge about the green campus at UIN Walisongo Semarang as many as seven questions, and questions about the attitudes and behavior of respondents related to the green campus as many as 18 questions. The criteria of respondents are residents of the faculty of science and technology. Determination of the minimum sample size is based on the theory of Isaac and Michael, with an error tolerance limit of 10% and accuracy of 90%. If the population is 1000, the number of samples needed is around 213 respondents.

Research procedure

Research is carried out by conducting interviews with the faculty regarding the programs that have been carried out to support the achievement of wegreen. The results of interviews and data collection will be analyzed using gap analysis to see how far the program's sustainability at the faculty compared with the value of the wegreen standard adopted from the green metric.

Data, Instruments, and Data Collection Techniques

The determination of respondents' answers was measured using a Likert scale with four levels. The 4-level Likert scale is a modification of the 5-level Likert scale to avoid the undecided category, which means that it cannot decide or give an answer, such as: doubtful or neutral. If a response is provided, it will eliminate a lot of research data, thereby reducing the amount of information collected on the respondent. There are four answer choices with predetermined weights. The weighting of values can be seen in table 1.1.

Table 1.1. Likert scale value weighting

Answer	Weight Rating
Strongly Disagree	1
Disagree	2
Agree	3
Strongly Agree	4

Data Analysis Technique

The method of data collection was done by filling out a questionnaire sheet. The data that has been obtained will be analyzed. The data analysis technique used is interpretation, which is an attempt to read from the data obtained. Based on the questionnaires that have been distributed to the academic community of the Faculty of Science and Technology of UIN Walisongo, 241 respondents filled out the questionnaire.

RESULTS AND DISCUSSION

Readiness is the readiness to respond or react to something (Jamies Drever in Slameto, 2010). The level of faculty readiness will be categorized into four types: very ready, ready, not ready, and not ready (Aydin, 2005). The level of readiness can be seen in Table 1.2.

Table 1.2 Categories of Readiness Levels

Level	Category	Explanation
1	<2.59	Not ready and need preparation to achieve success
2	2.6 – 3.39	Not ready yet and need some preparation to achieve success
3	3.4 – 4.19	Ready but still need some improvement in some aspects
4	4.2 – 5	Very ready for implementation

(Source: Aydin, 2005)

The following are indicators for the assessment of the education category along with the scores obtained.

Table 1.3. Education category score acquisition

Indicator ED (*Education*)	Score
ED 1. The ratio of sustainability courses to overall courses	4
ED 2. The ratio of research funding for sustainability research to overall research funding in 3 years	5
ED 3. The ratio of research funds for sustainability services compared to research funds for overall service in 3 years	4
ED 4. The ratio of lecturers' scientific publications on sustainability to the average number of publications for three years	3
ED 5. Activities related to sustainability in 3 years	4
ED 6. Number of student organizations related to sustainability	3
ED 7. Availability of news and activity galleries on the faculty website/website	5
ED 8. Availability of annual sustainability	3
ED 9. Number of cultural activities on campus	2
ED 10. Number of programs to overcome Covid-19	3
ED 11. Number of community service projects organized by funds or involving students	4
Average	3,6

The education score at the faculty has a maximum value of 5 and a minimum of 1. The score in table 1.3 is the score obtained by the faculty of science and technology in the education category. Education scores at the Faculty level have an average of 3.6. Based on Aydin (2005), the Faculty of Science and Technology is at the readiness level 3, which is in the range of 3.4 – 4.19; this shows that the faculty is ready to implement a green campus but still needs a slight improvement in several aspects.

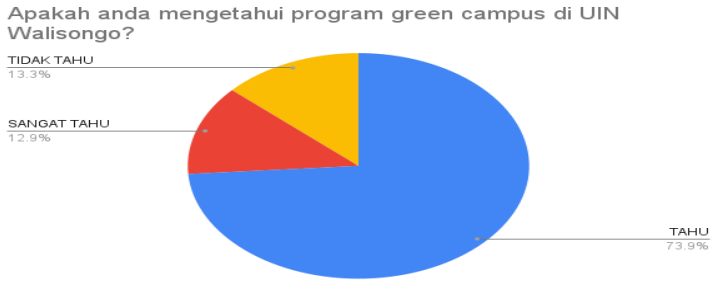

Figure 1.1 Respondents' knowledge of the green campus program

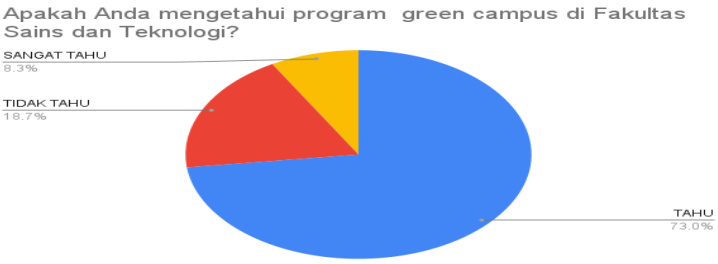

Figure 1.2. Respondent's knowledge about green campus program in the Faculty of Science and Technology

Figure 1.1 and Figure 1.2 describe respondents' knowledge about green campus programs both at the university and at the faculty. Of the 241 respondents answered tofu, 73.9% for university programs and 73% for faculties. From this data, more respondents know about the green campus program from the university but do not know about the programs in the faculty. The picture is evident from the answers "don't know" for university programs as much as 13.3% and "don't know" for faculty programs 18.7%. These data indicate that the faculty's eco campus program can be socialized more frequently to the faculty's academic community, not

members of the faculty's green campus team. For this program to run better, support from all parties is needed (Hopkins, 2016).

As many as 90, the number of respondents stated that they did not know about activities related to the green campus at the faculty level—ignorance results in the emergence of an attitude of neglect in the academic community. Sustainability itself can be achieved if cooperation arises from all parties . The green campus does not just appear but requires stages in its implementation, namely: the formation of a green campus council which is supported by six other steps, namely environmental observation, action planning, monitoring and evaluation, connections to study on campus, information and involvement, guidelines for building a green campus (Comhshaol & Rialtas, 2013). In the six stages of supporting the green campus council, there is information and involvement. If the information in the academic community is not socialized, the participation in the course of activities will be small.

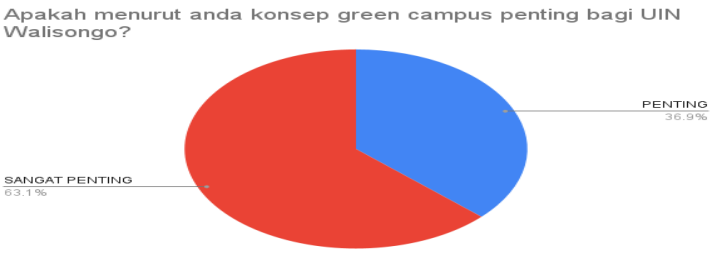

Figure 1.3. Respondents' perception of the importance of the green campus concept

From Figure 1.3, it is known that as many as 63.1% of respondents answered that the green campus concept was essential, and 36.9% responded that it was necessary. In this question, the reason for the respondent's answer is then asked again. The answers given by respondents were quite varied but could be grouped into several broad lines, namely:

1) It is an effort of UIN Walisongo to maintain and preserve the environment and contribute to reducing global warming following its vision.
2) It creates a comfortable, beautiful, and aesthetic campus environment to support the lecture process.
3) It is forming an environmentally friendly attitude and culture in the campus environment to be an example for the surrounding community.
4) As a form of obedience to Allah SWT.
5) The importance of banking institutions.

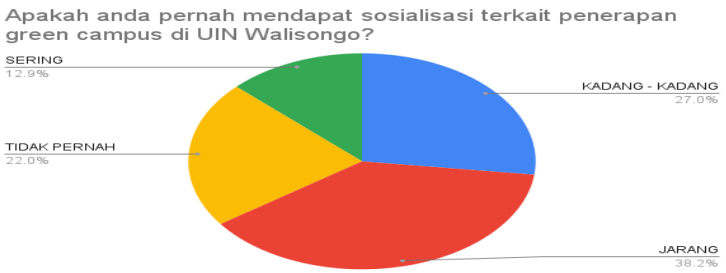

Figure 1.4. Green campus socialization received by respondents

Figure 1.5. Frequency of green campus socialization received by respondents

The percentage of socialization of the faculty's green campus program to respondents is still not maximized. Figure 1.4 shows the rate of 12.9% for the answer "no" and 27% for "sometimes." Meanwhile, based on Figure 1.5, only 16.6% answered "often," the respondents who responded in this percentage of 16.6% were also mostly from the community members of the green campus team of faculties and universities. The weak socialization of this program is based on the results of interviews with the faculty's green campus team is because it is currently hindered by the pandemic due to the covid-19 virus and also because the team is still analyzing the suitable format and method to build a green campus within the faculty of science and technology so that it can running effectively.

One of the supporters of the success of a green campus is the environmentally friendly attitude of the academic community. The current destruction of nature is one result of the lack of an environmentally friendly attitude. From the phenomenon of natural damage so far, efforts are needed to minimize environmental damage (Permadi, 2011). Actions that residents can make to reduce environmental damage use an environmentally friendly concept or what is known as "go green." In building an environmentally friendly attitude, it is necessary to instill a concern for the environment. The conscious actions taken by humans on the climate aim to minimize the negative impacts of some human activities on the environment. (Kollmuss & Agyeman, 2002).

According to Gabriella and Sugiarto (2020), students have high environmental awareness, but environmentally friendly attitudes or behaviors are still moderate. This can be seen from several statements on the questionnaire form. Respondents know that it is not permissible to hunt animals, must protect plants, and save any resources in their use, be it water, electronics, paper, etc. But in everyday life there are still many people who don't turn off electricity, air conditioning, fans when not in use, don't turn off the water, use paper only on one side, etc.

This indicates the need to teach environmental attitudes and awareness towards students and the academic community from an early age—both by applying strict rules and delivery specified in the class courses. According to Amos (2008), one of the things that can affect awareness of the environment is a lifestyle. Someone who has a green lifestyle will pay attention to the environment, pay attention to whether the actions taken will impact the environment, be it negative or positive.

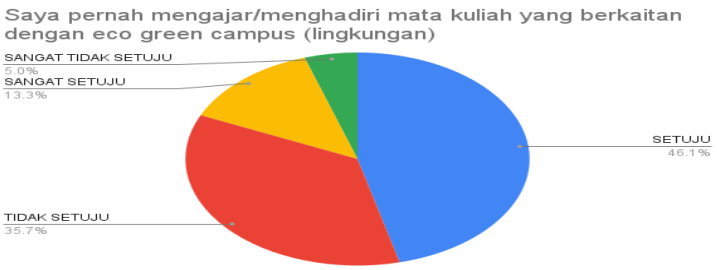

Figure 1.6. Respondent involvement in related courses green campus load

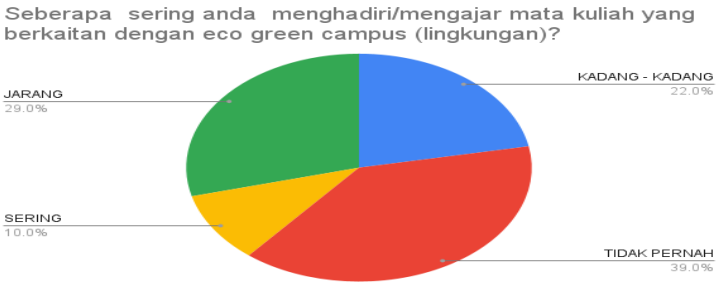

Figure 1.7. Frequency of respondent involvement in courses related to green campus

Figures 1.6 and 1.7 see how engaged respondents are in classroom learning, both as teachers and students. 51% stated that they had never taught green campus courses, and only 10% indicated that they had attended environmental courses. This shows that there is no awareness from the curriculum drafting team in each department to include environmental knowledge in the curriculum as the basis for student knowledge (Soleh, 2016). This can be due to the limited number of credits, and there are no rules from stakeholders regarding the importance of environmental courses, so the curriculum team does not understand how crucial environmental knowledge is (Shima, 2016)

Figure 1.8. Respondent involvement in research related to green campus

Figure 1.9. Respondent involvement in service activities to the community regarding the green campus

Figure 1.10. Respondents' scientific publications with the theme of green campus

Figures 1.8 to 1.10 diagrams show research trends in the faculty of science and technology regarding green campuses. 66%, 56%, and 73% stated that they had never been involved in green campus-themed or sustainability research. This is because sustainability research has become a leading topic on the UIN campus and has been on the UIN research road map for the last two years. While abroad and at other universities, this has become a leading topic since 2008 (Shima, 2016). In addition, several lecturers consider the research costs, which are still not covered by the campus, and not many students are interested in taking up this theme as a final project. The amount of funds provided by the campus is still considered small, so it has not motivated lecturers and students to conduct research.

Figure 1.11 Participation of respondents in student organizations related to green campus

The participation of respondents in student organizations is low, seen from the percentage of participation according to Figure 1.11. As many as 71% of respondents have never participated in organizations related to green campuses. The respondents who fill in are often included in the mawapala members and activities followed outside the campus. This is due to the absence of organizations in the faculties and universities that promote environmental sustainability. This shows the need to form a new organization that accommodates activities with sustainability or the green campus movement.

Figure 1.12. Frequency of respondents in participating in the green campus program

The frequency of respondents who take part in the green campus program is 7.9%, which is still low. This low frequency indicates that sustainability-themed activities within the science and technology faculty are still minimal. This is evident from the number of activities carried out in a year compared to environmental-themed activities. Lack of motivation can cause this to happen. Lack of motivation can be caused by a lack of funding from the faculty and the difficulty of finding parties who can sponsor the activities to be held.

In addition, the absence of a student activity unit as a forum for students to develop this activity influences the desire of students to organize activities with this theme. The lack of

information on the implementation of activities also causes students not to participate in this activity due to the lack of information dissemination, so that there are fewer participants in the activity.

The environment is crucial for life, both human and animal and plant life. Humans cannot have a good quality of life if the environment is damaged and polluted. The earth is getting older, and the development is getting more and more, making the quality of the environment and the quality of life of many people decline. The emergence of the phenomenon of natural damage also indicates the declining quality of the environment. The existence of these problems makes humans more innovative in dealing with these problems.

College is a place to learn and gain knowledge, and this knowledge will be used in life (Mcmillan and Dyball, 2009). Current natural phenomenon makes universities more innovative in making breakthroughs, one of which is forming a green campus. This green campus teaches that the education, research, and service system must have environmentally friendly attitudes and actions and positively impact the environment (Arifin, 2001). The Faculty of Science and Technology already has programs related to the green campus. The existence of a faculty Award encourages faculties to improve the management of the faculty environment to support the formation of a green campus. However, based on a questionnaire with indicators of education in the green campus, filled out by 241 respondents from the faculty community, there is still a lack of contribution from the academic community in this program. The questionnaire results stated that some respondents already have a sense of environmental awareness, but this sense of environmental awareness has not been balanced with environmentally friendly attitudes (Notoatmodjo, 2010).

The questionnaire results also show that the socialization of the green campus program is still not optimal because there are still many academics who do not know about this program. This, of course, can cause obstacles to the establishment of a green campus if all parties do not support it. Hopkins (2016) reveals that the challenges to realizing a green campus are due to lack of enthusiasm and attention, awareness from decision-makers, low incentives, and inadequate financial policies. Then Hopkins (2016) states that these obstacles can be minimized by student perceptions and environmentally conscious understanding of the university executive and collaboration in deciding policies to reduce these obstacles.

Students' perceptions can be built if the importance of environmentally friendly actions has been instilled from the beginning of the lecture. Of course, this must be taught in the course as credits that must be taken. It's just that within the faculty of science and technology, not all study programs have lessons on the environment, especially regarding environmental sustainability. This needs to be supported by the existence of these courses in the curriculum.

The lack of student perceptions and environmentally friendly actions causes many facilities in the campus environment to not be used optimally. For example, the trash can, many students still haven't sorted out the trash when putting it in the trash can that has been provided. Many academics still smoke in the campus environment and throw garbage out of place. Even though the faculty has a waste bank organization, the empowerment of this waste bank is still not maximized, as evidenced by the temporary disposal sites for waste from the faculty that are still mixed, be it leaves, cardboard boxes for eating, or plastic bottles.

The lack of research on sustainability is also due to policies that have not been supported in the previous year. The topic of green campus has only been appointed as a leading topic in the last two years. This causes lecturers and students not to be interested and less motivated to research in this field. This topic should be included in the university research road map and socialized to the entire academic community, not only informed to the university's green campus council or faculty. The success of a green campus, of course, requires the support of

the entire community. The lack of research on sustainability can also be due to the lack of student interest in reading and writing (Puspadi, 2016). Of course, this can also be caused by the lack of invitations and invitations from the faculty.

Environmental-themed activities that are still minimal, both in the number of activities and the number of participants, can also be due to the lack of appeals and invitations to participate in environmental concept activities. In addition, it can be caused that the information is not spread evenly to all levels. However, participating in these activities will get a certificate used as a condition for the final exam. This does not guarantee that students are aware of participating in these activities. The results of the analysis of respondents' answers have been carried out. It is recommended that the faculty carry out the following strategies.

a. There needs to be a policy towards all majors to add environmental courses as mandatory subjects in their respective curricula.
b. Carry out public lectures with the theme of environmental knowledge that all levels must attend.
c. Prepare a special allocation of funds for research on the theme of sustainability.
d. Socialization of environmental-themed activities and the formation of student activity units guided by the faculty, not only in study groups but also in those who direct the environment.
e. Socialization of the green campus program to all levels.
f. Innovation activities by students with the theme of the environment
g. Holding workshops, seminars, or training for lecturers on the concept of a green campus.

CONCLUSION

From the research that has been done, the following conclusions can be drawn:

The Faculty of Science and Technology, based on the WeGreen Faculty Award in education, has an average score of 3.6. This shows that the faculty is at readiness level 3, in the range of 3.4 – 4.19. This indicates that the faculty is ready to implement a green campus but needs slight improvement in several aspects. The obstacles found in the Faculty of Science and Technology towards achieving a Green Campus in the Education category include: the distribution of courses that are charged with environmental sustainability is still not evenly distributed, especially in the Department of Mathematics and Information Technology; the faculty website has not provided information in the form of reports on environmental sustainability activities; the low contribution and involvement of the academic community in the green campus program are due to the lack of socialization regarding the programs and activities held; There is still not much research on the green campus theme because this theme has not yet become a leading theme in the faculty research road map. The achievements of the faculty in the education category include: being the 2nd runner-up in the WeGreen Faculty Award assessment, having a Waste Bank even though its utilization is not optimal.

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