The Readiness of Student in Achieving Sustainable University in Indonesia: Case Study in University of Jember

Taufik Kurrohman, Robert Hales, and Cordia Chu

ABSTRACT

Economic development in almost all countries causes harmful effects that future generations will feel. The solution to this issue is the application of sustainability in all aspects of life, including at universities. Students as future generations are stakeholders interested in implementing sustainable universities. This study aims to see the readiness of students to support the implementation of sustainable universities in Indonesia. The research method used is pre, and post-experiment using video media about climate change's negative impacts and causes. Data analysis of selected respondents purposively was carried out using content and descriptive analysis. The result is that students are quite ready to support the implementation of a sustainable university; even students provide several strategies to make the performance of a sustainable university successful.

Keywords: Business Student, Indonesia, Student Readiness, Sustainable University.

I. INTRODUCTION

Some time ago, the news about NASA scientists who were carrying out a protest action and were later arrested by police officers was a hot topic. The protest was against the ongoing and uncontrollable climate crisis. The action was carried out because of urgency and despair after publishing the UN report, which stated that humans only had three years to reduce greenhouse gas emissions and avoid a more severe climate disaster. This action by NASA scientists has prompted protests from other scientists worldwide, urging governments and stakeholders to take quick and comprehensive steps to reduce greenhouse gas emissions before it is too late (Summit, 2002).

The news about the concerns and despair of scientists has attracted the attention of many, one of which is young people who use social media platforms a lot, which then encourages the emergence of an initiative to delete emails to reduce gas emissions because emails are predicted to leave carbon footprints which are high enough. According to The Good Planet, nearly 107 billion spam emails were sent and received in a single day in 2019. If one person deleted 10 of those emails, there would be 1,725,000 gigabytes of storage space, equivalent to 55.2 million kilowatts of energy (Nation, 2012). However, this is not enough because nothing will stop Google from creating more data. It is just that as individuals, at least humans can contribute by reducing the environmental impact of using technology, one of which is by deleting emails that are no longer used.

Removing email alone may not have a significant impact on reducing greenhouse gas emissions. Climate and environmental problems have been a problem for years (Nation, 2007). Countries that are members of the United Nations have discussed steps to preserve nature in the past 30 years ago. Then what other steps can be taken to achieve sufficient gas emission reductions to keep the planet's temperature below 1.5 degrees Celsius from global warming in 2025?

In 1992, more than 178 countries attended the Earth Summit in Rio de Janeiro, Brazil and produced Agenda 21. In 2000, countries members of the United Nations held the Millennium Summit and produced the Millennium Development Goals. Furthermore, the United Nations meeting in 2015 resulted in the 2030 Agenda for Sustainable Development, which consists of 17 goals known as the Sustainable Development Goals (Assembly, 2015).

The agendas are drawn up since 1992 have the main objective of protecting the earth and its environment. However, there are still many obstacles that make this goal difficult to achieve. One of them is these goals which are still not widely known by the public. Various factors can cause this. In Indonesia itself, Indonesia's geographical factors are so broad that the distribution of information becomes uneven. The unequal distribution of information causes public understanding of the seriousness of the impact of climate change to be minimal and causes not many people to realize the importance of their role in protecting the environment.

It is considering the critical role of the community in participating in the movement to protect the environment from achieving the goal of reducing greenhouse gas emissions. It encourages the need for concrete steps to be taken by the government to accelerate the dissemination of information regarding sustainability and sustainable development goals. One concrete step that the government
can take is to use higher education institutions as an extension of the government’s arm to start becoming agents of change. This step later became the initial spearhead for establishing a sustainable university.

Jember University is one of the higher education institutions known to have a green campus with 67% green area, and in 2010 was ranked 20th in Indonesia in the Green Metric assessment. As one of the universities in Indonesia that has a green campus, it is appropriate for the University of Jember to instill the principle of sustainability in every activity to participate in efforts to achieve the goals of the Sustainable Development Goals by taking part in becoming a sustainable university. Therefore, this paper is aimed to examine whether or not the University of Jember is ready to be a part of the sustainable University.

II. LITERATURE REVIEW

A. Sustainability

The term sustainability has become popular in policy-oriented research as an expression of what public policy must achieve. The main inspiration came from the Brundtland Report in 1987. Since then, the concept has undergone a shift in meaning. The concept of sustainability was created in forestry, which means that it is not allowed to harvest more than what the forest produces. Nachhaltigkeit (a German term for sustainability) was first used in 1713. The concern for conserving natural resources for the future is enduring, of course: no doubt our Palaeolithic ancestors feared their prey would become extinct, and early farmers certainly did. Worry about maintaining soil fertility. Traditional beliefs command thought in terms of stewardship and concern for future generations, as expressed in the oft-quoted words of a Nigerian tribal chief who saw society as consisting of “many dead, few living and countless unborn”. There may always be two opposing views of the relationship between man and nature: one emphasizes adaptation and harmony, and the other sees nature as something to be conquered. While this latter view may have been somewhat dominant in Western civilization, at least in the last few centuries, its counterpart has never been lost (Kuhlman, 2010).

Sustainability (without having to use the word) is a natural topic of study for economists: after all, resource scarcity is a significant concern for dismal science. A well-known example is the work of Thomas Malthus. He published his theory of a threatening mass famine (due to the inability of available agricultural land to feed a growing population) in 1798. A theory about the optimal level of exploitation of non-renewable resources that is still relevant today was formulated by Harold Hotelling, an American economist, in 1931.

A milestone in drawing attention to global public policy is the Club of Rome report, which predicts that many natural resources essential for our survival will be depleted within a generation or two. Such pessimism is inappropriate in a public policy that, after all, should be about improving things. Therefore, the United Nations World Commission on Environment and Development report is welcome, better known as the Brundtland Report after its chairman. It points a way out of the impending doom. This report adopted the concept of sustainability and gave it the wide acknowledgment it enjoys today.

So, the concern for the environment is essential, but the primary argument is welfare, seen in the context of equality between generations. We must care for the environment not for its intrinsic value but for conserving resources for our children.

B. Sustainable University

Sustainable University means a university that contributes to building a sustainable society through education, research, community collaboration, and campus development. A Sustainable University is not something that simply means a campus with a low environmental impact. It aims to support the welfare of society practically and multilaterally by expanding education and research rooted in social challenges as a whole university policy and implementing campus development in harmony with the surrounding area (Hokkaido University).

A sustainable university has reduced its ecological footprint far beyond standards. It has done so with an institutional ethos that advocates for justice, peace, respect, and action to protect the integrity of natural systems and demonstrates an open willingness to share. This information is outside its walls, wherever it is needed. Whether working to reduce our ecological footprint, raising awareness about environmental issues, or seeking sustainable solutions, educational institutions that work to transform themselves as agents of change are institutions that live and learn for sustainability. The concept of a sustainable university is an aspiration, a vision that nurtures our practice. Each educational institution, unique in its history and culture, can create its path of sustainability (Dawson College).

The Sustainable University inclusively defines sustainability, encompassing human and ecological health, social justice, and secure livelihoods for all generations. Sustainability is about working collaboratively to create a world where everyone can thrive. We face increasingly complex challenges such as climate change, racial injustice and economic inequality. Successful sustainability strategies work towards balanced and ethical solutions that are environmentally friendly and economically viable, and socially just. (Florida State University)

Based on the description of the sustainable University, it can be seen that the vital role of higher education institutions in the transition to a more sustainable society has been recognized and highlighted for almost three decades. In light of the most pressing urban and planetary sustainability challenges, universities are identified as major inner-city centres for innovation and environmental education, representing a valuable opportunity to enable the generational behaviour change needed to take more sustainable attitudes in everyday life (Lozano, 2010). Sustainable universities have been defined as higher education institutions that address, engage, and promote regional or global levels. Also, the minimization of negative environmental, economic, social and health impacts from using their resources to fulfill their teaching functions, research, outreach and partnerships. Furthermore, stewardship by helping people transition to sustainable lifestyles (Zsóka, Szerényi, Széchy, & Kocsis, 2013). At the same time, Cole highlights the critical role of
sustainable university communities, as they actively engage the knowledge of the university community to address the ecological and social challenges we face now and in the future. To be trusted in this coaching role, universities at Primis must behave responsibly and wisely in responding to sustainability issues in campus energy and human resources management.

Ethical issues. The younger generation can play a significant role in addressing sustainability by understanding and applying a holistic and trans-disciplinary approach that addresses the four dimensions of sustainability and their interrelationships (Wright, 2010). However, managing this social responsibility transition and adapting the campus-built environment to a more sustainable system is not trivial. For example, the education function accounts for 17% of the overall stock of non-residential buildings in the EU (del Mar Alonso-Almeida, Marimon, Casani, & Rodriguez-Pomeda, 2015). Knowing that buildings are responsible for about 40% of the total final energy demand in Europe, the education sector accounts for 6.8% of the EU’s total energy consumption. To give the big picture outside of the European case, the education sector in China accounts for 40% of the total energy consumption in public buildings, with 30 million students and 1.87 GJ/m² of energy consumed in 2007. In this way, universities do not become a center of innovation and environmental education but also an essential factor in the urban environment, which must use a complex set of accounting indicators, deal with environmental performance and deal with economic and political, social, and environmental criticality. In this context, the campus sustainability assessment (CSA) has emerged. It has been used for over a decade to identify best practices, communicate goals and experiences, and measure progress towards achieving the sustainable university concept. Even if the literature in the late 1990s proposed detailed environmental reports, primarily by voluntary initiatives of different North American universities, little relied on empirical or general data-frame of reference (Sonetti, Lombardi, & Chelleri, 2016).

However, with increasing interest in the impact of the campus environment, as a consistent part of the built environment, many projects are launching broader initiatives for cross-comparison and campus assessment (Trencher, Yarime, & Kharrazi, 2013). Different CSAs have been proposed at national and regional scales worldwide in the last decade, varying widely in purpose, scope, function, state of development, and proximity to the ideal tool. Recent research on CSA has focused on defining and examining the role of metrics, even questioning their necessity (Alshuwaikhat & Abubakar, 2008). Shiriberg reviewed 11 assessment tools and found that many excel at capturing environmental performance and sustainability data and process-oriented information. They also provide a basis for strategic planning, stating objectives and methods. However, they do not provide a comparison mechanism (national and international), as they have traditionally emphasized material utilization, CO₂ emissions, and regulatory compliance, which differ from country to country.

Furthermore, measuring sustainability requires a significant leap beyond the energy efficiency paradigm, addressing social, economic, and environmental impacts. For example, an eco-efficiency indicator would give the number of kWh per square meter per year. In contrast, a sustainability indicator should reduce consumption over the years, or the percentage of people satisfied with the comfort level in their work environment (Li, Tan, & Rackes, 2015). Because of this, CSA can be a powerful tool to trigger and support organizational change processes, or it can be dangerous to use as a mere facade, contributing to the business-as-usual greenwashing of unsustainable university management.

III. Research Method

This study uses quantitative and qualitative data with a pre- and post-experimental research approach. This research was conducted on students of the Faculty of Economics and Business at the University of Jember, Indonesia in 2021. The experiment given was in the form of playing a video about the Causes and Effects of Climate Change produced by national geographic in 2017. The sample selection was carried out purposively with the criteria of students who had taken courses containing sustainability, both for business majors. The total sample of each is 63 students from the economics and business faculties of the University of Jember Indonesia. The experimental stage is given in two steps. In the first stage, students with their initial level of knowledge were given a questionnaire about students’ perspectives and understanding of sustainability. In addition, students were also asked questions about effective strategies for students in their involvement in the successful implementation of a sustainable university. Questionnaires are given in the form of qualitative and quantitative data. After completing the first stage, students were given a 10-minute break before playing the video, the treatment media in this experiment. The second stage was carried out after the students watched the video playback about the causes and effects of climate change by being asked questions similar to the pre-experiment. Data analysis was carried out using content and descriptive analysis using Leximancer 4.5 tools.

IV. Discussion

The following is an analysis of data from a survey on sustainability and its application at the University of Jember, which was conducted on 63 respondents who are Jember University students. The survey was conducted twice in different periods, namely before and after the experiment was conducted on the respondents.

A. Sustainability Concept

The results of the survey conducted before the experiment showed that 41.27% of respondents, gave responses indicating that they understand sustainability as a concept of sustainable development, then 38.09% of respondents, gave responses indicating that they understand sustainability as a concept of ecological balance. 30.77% of respondents or as many as eight people capture the concept of sustainability as meeting present and future needs. The rest consisted of students who abstained or did not give an answer and 4.72% who responded to the description of sustainability out of context or not at all following the concept of sustainability.
The answers from the respondents, who are all students, illustrate that, in general, the concept of sustainability is well known by students but is not yet fully understood.

Apart from the ratio which shows that students at the University of Jember still do not fully understand the concept of sustainability, the enthusiasm of students for the implementation of sustainability in the university environment can be said to be relatively high, where 54 % of respondents said they were very enthusiastic, 37 % of respondents said they were enthusiastic. Only 10 % of respondents said they were expected. Meanwhile, other respondents who stated that they were very enthusiastic about implementing sustainability at the University of Jember were due to the following reasons: Just because they do not understand the concept of sustainability.

- To maintain environmental safety
- So that the University of Jember can use natural resources wisely
- To build the image of the University of Jember as a university that cares about the environment
- To fully understand the concept of sustainability

The survey results showed that 87 % of the respondents gave responses indicating that they had further understood the concept of sustainability. Respondents gave answers such as “sustainability is the concept of maintaining an ecological balance”, “sustainability is a sustainable and environmentally friendly development planning system”, and “sustainability is the concept of using resources wisely”. The ratio of respondents in terms of understanding the concept of sustainability changed after the experiment. The level of student enthusiasm also showed an increase after the experiment was carried out; namely, 63 % of respondents stated that they were very enthusiastic about the implementation of sustainability at the University of Jember, 32 % expressed enthusiasm, and only 5 % of respondents or as many as three people stated that they were okay with the implementation of sustainability at the University of Jember. The reasons for the level of enthusiasm shown by the respondents also changed to:

- To maintain environmental safety
- Can have a good impact on the University of Jember
- To be an example for the surrounding community
- To increase awareness among students

From these data, it can be seen that for students at the University of Jember, maintaining environmental safety is a top priority in implementing sustainability.

B. Implementation of Sustainability

Respondents also 100 % agree with implementing sustainability at the University of Jember because there are still many problems within the University that need attention. The three main problems that need to be prioritized by the University of Jember are Waste, Environment, and Buildings, with a composition of 21 % of respondents answering that waste is one of the problems in the University of Jember that needs to be prioritized, then 17 % stated that the environment also needs to be a priority. Furthermore, 14 % of respondents said that the building is the third problem to be prioritized within the University of Jember.

The data shows that students at the University of Jember are pretty concerned about the environment around the University. Students are also very enthusiastic when the University offers programs to support the implementation of sustainability in the university environment. The programs expected by students include:

- Workshop/Seminar/Socialization on sustainability
- Waste management program
- Activities to clean the environment together

Workshops, seminars, and outreach programs were the most mentioned programs; 37 out of 63 respondents mentioned the program because respondents expect to understand sustainability better. One of the 63 respondents also said that universities or faculties could include sustainability material in lectures, as has been done by many higher education institutions, namely by incorporating sustainability into the university curriculum.

<table>
<thead>
<tr>
<th>Sustainability Description Before the Experiment</th>
<th>Total Respondent</th>
<th>Sustainability Description After the Experiment</th>
<th>Total Respondent</th>
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<tbody>
<tr>
<td>Sustainable Development</td>
<td>26</td>
<td>Maintaining ecological balance</td>
<td>24</td>
</tr>
<tr>
<td>Ecological Balance</td>
<td>21</td>
<td>Use resources wisely</td>
<td>16</td>
</tr>
<tr>
<td>Fulfilling present and future needs</td>
<td>8</td>
<td>Sustainable and environmentally friendly</td>
<td>15</td>
</tr>
<tr>
<td>Environmental Conservation</td>
<td>2</td>
<td>planning system</td>
<td>3</td>
</tr>
<tr>
<td>Balance concept</td>
<td>1</td>
<td>A sustainable-based development planning</td>
<td>1</td>
</tr>
<tr>
<td>Organizational long-term resilience</td>
<td>1</td>
<td>system that emphasizes social, economic and</td>
<td>1</td>
</tr>
<tr>
<td>Biological system</td>
<td>1</td>
<td>environmental aspects</td>
<td>1</td>
</tr>
<tr>
<td>Social challenge</td>
<td>1</td>
<td>How the state maintains the balance of the</td>
<td>1</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
<td>country</td>
<td>1</td>
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<tr>
<th>TABLE IV: CONCEPT OF SUSTAINABILITY</th>
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<tr>
<th>Issue</th>
<th>Before Experiment</th>
<th>After Experiment</th>
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<tbody>
<tr>
<td>Water</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Building</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Energy</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Paper/plastic</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Environment</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Foeds</td>
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<td>1</td>
</tr>
<tr>
<td>Procurement</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Waste</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>Transportation</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

TABLE V: PRIORITY ISSUES IN UNIVERSITY OF JEMBER
The number of respondents who agreed to the implementation of sustainability at the University of Jember did not change after the experiment was carried out, namely, 100% agreed. In contrast, the composition of the three main problems that became the main priority after the experiment turned into waste, the environment, and paper/plastic. Meanwhile, respondents also gave answers with a more diverse composition after the experiment on questions about programs that students expect to support the implementation of sustainability, including:

- Workshop/seminars/socialization about sustainability
- Dissemination of the design and implementation of sustainability
- Waste management program
- Community service cleaning the environment
- Energy-saving program

This data shows that many students begin to understand the importance of managing energy use which is an integral part of sustainability.

C. Student Roles and Suggestions for Achieving Sustainable University

In addition to programs from the University, student enthusiasm about implementing sustainability can also be seen in the survey results, which show that most students have taken small actions to deal with problems around campus, namely starting by disposing of waste in its place, reducing the use of paper and plastic by bringing lunch boxes and own bottle. This respondent's answer also illustrates the actions taken by students are primarily focused on waste and the environment. Of the 63 respondents, only one respondent answered that the small actions taken to support the formation of a sustainable university are also efforts to save energy use.

In addition to small actions carried out by individual students, respondents also mentioned that there need to be other means to realize the implementation of sustainability, including through campaigns on social media, educational videos, and increasing supporting facilities such as a waste bank. Respondents also mentioned that further introduction about sustainability to students is the first step taken by the University to create a sustainable university. The next step is to have a program or a particular order from policymakers to jointly protect the environment and manage waste.

Similar to the program that students expect to support the implementation of sustainability at the University of Jember, students also give more diverse answers, after the experiment, to questions about small actions that have been carried out individually, including:

- Dispose of trash in its place
- Save energy and water
- Reduce the use of plastic bottles
- Quit smoking

Students also provide suggestions on what universities can do to achieve a sustainable university, namely:

- Limiting the use of motorized vehicles
- Improve waste disposal facilities
- Starting a program to reduce plastic use
- Implementing a good waste management program

V. Conclusion

The majority of respondents who are students of the University of Jember have a sufficient basic understanding of sustainability. However, they still need further understanding because the results obtained after the experiment were carried out, and the number of students who gave correct answers about sustainability increased. In addition, most students also stated that a workshop/seminar/socialization program for further understanding sustainability and its application is still needed. All students also agreed to the plan for implementing sustainability at the University of Jember because the implementation of sustainability and achieving a sustainable university would have a good impact on the University of Jember, could maintain environmental safety around the University of Jember, and as an agent of change, the implementation of sustainability in the campus area could be a step to increase awareness among students and become an example for the community around the University.

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Conflict of Interest

The authors declare that they do not have any conflict of interest.

References


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Prof. Chu has published five books, over 230 Journal articles and chapters, 2 policy/guidelines, 4 commissioned research communication booklets, 5 documentary films, and has delivered 80 keynote addresses and over 150 invited presentations at international conferences. Chu has been active in capacity building in public health. Her team has won 11 rounds of the Australian Leadership Award and trained over 200 leadership fellows from eleven countries including Australia.