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INTEGRATED APPROACH MODEL TOWARDS UNIVERSITY SUSTAINABILITY: ANALYSIS OF BEST PRACTICES OF SUSTAINABLE UNIVERSITIES

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Abstract: *Issue of University Sustainability is developed due to the emergence of impact of activities in university. Since those activities have impacts on the people and environment, it is significant that the university finds a sustainability model to alleviate the impacts of those activities. A systematic approach is needed to manage the environment and ensure the sustainability. The practices toward University Sustainability is an endeavor not only to create a healthy university environment, economic prosperity through energy and resources conservation, efficient waste and environment management but also to establish social justice and enforce it in national and international. The economic, social and environmental factors are major consideration to accomplish recognition as sustainable university. The objective of this research is identifying general practices developing sustainability model found at the university and based on Tri Dharma values of university. To develop the concept of Sustainability University, the identified general practices can be develop further in the making of university manual. This research is conducted analyzing activities supporting the best practices of sustainable university in a number of world universities: Osaka University, University of Western Australia, Brown University, National University of Singapore, University of Melbourne, Chulalongkorn University, University of Indonesia , and GadjahMada University. The obtained result will be principle for establishing best practices parameter of Sustainability University.*

Keyword(s): *Sustainability University, General Practice, Integrated Approach Model, Tridharma University*

1. FOREWORD

In the last several years, the attention to the issue of sustainability in the university's environment continuously increases and it becomes one of the current prevailing global issues (Barnes, 2002; Bernheim, 2003; Cortese, 2005; Viebahn, 2002; Shriberg, 2002; Corcoran, 2002). The sustainability concept is first introduced to the world's international education in the United Nations conference, 1972, discussing Human Environment (Carter and Simmons, 2010).

Ever since, many national and international declarations related to sustainability concept develop continuously (Wright, 2004). The sustainability

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declaration in university level was started by Talloires Declaration in 1990 (Wright, 2002). This declaration not only connects teaching, researching, and operational activities in the university (Association of University Leaders for a Sustainable Future, 2011) but also describes what actions should be taken by the university to achieve the sustainability (University Leaders for Sustainable Future, 2001). The sustainability in the university has been an agenda since 1992 when Agenda 21 was published as a result of Earth Summit (KTT Bumi) in Rio de Janeiro (PBB, 1992). In 2012, there was a political commitment to the sustainable development discussed in the United Nations conference (PBB, 2012). Additionally, there was The American College and University Presidents Climate Commitment in 2007 (American College and University President Climate Commitment, 2009). This commitment articulates a more specific destination compared with the prior declaration, even in several countries, this commitment aims to comply with the requirements of quality assurance (Fadeva *et al.*, 2001).

Currently, there are a lot of organizations engaged with the development of the universities sustainability providing working groups, advisory services, certification and programs facilitation (AASHE, HEPS, and ISCN). According to AASHE, an association having objective to promote the sustainability in university by providing such resources as buildings, transport, waste and curriculum (Association for the Advancement of Sustainability in Higher Education, 2009), more than 620 university leaders in the United States ratify the American College and University Presidents climate Commitment (ACUPCC) that requires signing in order to achieve climate neutrality within a certain period. This commitment requires the participation of universities to reduce greenhouse gas emissions. These universities represent more than 30% of students in the United States.

Alshuwaikhat and Abubakar (2007) explain that this issue arises because of the discovery of the environmental impact of the activities occurring in the university. Even in the United States, the government enacts a policy stating that the university will be treated similar to a traditional industry in which industrial activities have effects on the environment and health (Alshuwaikhat and Abubakar, 2007). Bernheim (2010) states that educational institution is one out of many the institutions demanding high levels of energy supply and producing high level of activity waste. Increasing number of academicians in the university environment results the more energy consumption and waste production.

Conversely, the universities have a social responsibility to raise awareness of sustainability issue and educate and train the community. Accordingly, the universities need to have holistic sustainability management system promoting the development patterns of environmental sustainability, ecological balance and biodiversity. The university sustainability means the unifying between the university and activities of the university. This unifying enables the university and its entire academic community to fulfill their needs and express their potencies

in the long term (Alshuwaikhat and Abubakar, 2007). Burtland's report explains sustainability as a process not an ending goal. Sharp (2002) argues that the complexity of the organization and the environment influence the organization's success in getting an agreement. Yarime *et al.* (2002) mentions that the university assessment system should provide a holistic assessment consisting of the academic programs, institutionalization and collaboration with the stakeholders.

The Tri Dharma values of becomes the solid foundation of any innovation and idea development related to sustainability. The university is capable to raise the public awareness of how the sustainability can be integrated into daily life (Jain & Pant, 2010). Higher educational institution is expected to be a sustainability model for the communities by presenting the management and implementation of better sustainability. Indeed, Franklin *et al.* (2003) also states that the issue of sustainability also provides the higher education an opportunity to be an institution educating public about the sustainable development model.

In several universities, the efforts to accomplish sustainability are focused more on controlling water, gas emissions and waste disposal. Alshuwaikhat and Abubakar (2007) state that along with the development of complex environmental issue, a systematic approach such as the environmental management to reduce not only resource consumption but also negative impacts of activities conducted in the university is essential to be performed to promote the sustainability university. Yet, most of the universities generally find difficulties in implementing this systematic approach.

The United Nation for sustainable development has emphasized the importance of education programs to sustainability concept (UNESCO Education Sector 2005). The inclusion of educational programs in the sustainability concept is to integrate the inherent values of the sustainable development into all aspects of learning; therefore, it alters society's behavior.

The education for sustainable development is defined as a dynamic concept utilizing the aspects of public awareness, education and training. These three aspects create and improve understanding of the inextricable link among knowledge, skills, perspectives and values to create a sustainable future (Yarime *et al.* 2012). Hernandi (2012) articulates that the sustainable future is a future where the today taken decisions do not limit future opportunities. Velazquez *et al.* (2005) states that the educational institutions respond slowly the university sustainability. According to Yarime *et al.* (2012), the slow response to the university sustainability is caused by university assessment system that is less serious in considering the sustainability concept in the evaluation process. Studying from the research conducted by Bekkesy, Clarkson and Samson (2007) in the Royal Melbourne University in Australia, it is found that the result of the declaration of sustainability concept is not fully implemented.

The university assessment system generally evaluate such various issues as the resources usage, sustainability education, teaching combining, research, operations and services, and actions performed by an institution (Shriberg, 2002). Yarime and Tanaka (2012) explain that each assessment system is conducted separately; hence, as this assessment is not integrated. To encourage the active response of educational institutions to the university sustainability and the university assessment system should be modified appropriately; consequently, this suitable modification can become the significant force towards university sustainability (Fadeeva and Mochizuki, 2010).

2. THEORETICAL FRAMEWORK

2.1. Sustainability

Sustainability, as described in the Brundtland Report (1987), is a process and not an ending goal. According to Gray and Bebbington (2000), the sustainability concept must ensure that the current generation and future generations can accomplish their social needs and environmental needs. From the various interpretations of the sustainability concept, Aurali Ella Dade (2010) defines sustainability as the process in which an organization endeavors to improve the life quality of the surrounding community by balancing the economic, social and environmental aspect. Meanwhile Bartlett Chase (2004) explains that these three aspects become the major pillars of sustainability (Soif *et al.* 2009). In Jon Elkington's book: "Cannibals with Forks: The Triple Bottom Line of 21st Century Business", these three major pillars is named as "Triple Bottom Line" (Elkington, 1998).

2.2. University Sustainability

Le Corbusier (1936) provides a statement as following:

> "The ... campus is a world in itself, a temporary paradise, a pleasant stage in life."

This statement facilitates the creation of a comfortable and pleasant university; thus, the term sustainable university appears. Velazquez *et al.* (2006) defines sustainable university as:

> "A higher educational institution, as a whole or as a part, that addresses, involves and promotes, on a regional or a global level, the minimization of negative environmental, economic, societal, and health effects generated in the use of their resources in order to fulfill its functions of teaching, research, outreach and partnership, and stewardship in ways to help society make the transition to sustainable lifestyles"

Cole (2003) also defines sustainable university as an academic community sharing the responsibility to protect and improve the health and well-being of humans and ecosystem. It includes also an understanding to address ecological and social challenges. Alshuwaikat and Abubakar (2008) states that the sustainable university

should not only reflect a healthy environment with a prosperous economy through energy and resource conservation, waste management and efficient environment but also encourage the creation of a social justice in society.

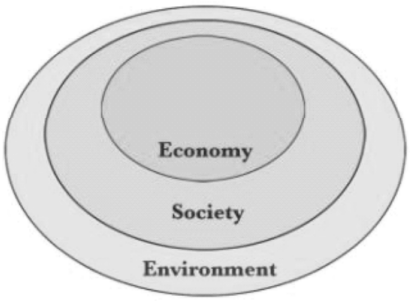
The sustainability concept was first introduced to the world of international education in 1972 in the United Nations conference discussing the Human Environment (Carterand Simmons, 2010). Since then, the number of national and international declarations related to the sustainability concept is growing (Wright 2004). The sustainability declaration at the university level was initiated by the Talloires Declaration in 1990 (Wright, 2002). This sustainability declaration not only integrates the teaching, research and operation activity in the university (Association of University Leaders for a Sustainable Future, 201) but also describe the actions to be performed by the universities to accomplish sustainability (University Leaders for a Sustainable Future, 2001). The sustainability in the universities has been an agenda since 1992, when the Earth Summit in Rio de Janeiro issued the Agenda of 21 (United Nations, 1992). Then in 2012, a political commitment to the sustainable development became the discussed agenda at the UN Conference (United Nations, 2012). Now, many organizations focusing on the field of university sustainability promote and facilitate the sustainability efforts through conferences, publications, researches, communication forums (Calder & Dautremont-Smith, 2009), and certifications and awards for the universities considered credible as the "sustainable university". The organizations promoting the university sustainability are the University Leaders for a Sustainable Future (USLF), Association for the Advancement of Sustainability in Higher Education (AASHE), High Education Professional School (HEPS), and International Sustainable Campus Network (ISCN). These varied sustainability organizations in collaboration with the external groups provide necessary information to support the campus by learning from each other and working towards the common goal (Simpson, 2008).

2.3. University Sustainability Model

The University Sustainability is the university characterized by social and economic operational activities, supporting the long-term viability of environmental and social structure (Razak *et al.*, 2011). The sustainability concept will affect every area of the university from classroom, laboratory, transportation to other services in the campus.

The relationship among economic, social and environmental aspect are inseparable. It is portrayed in a model of sustainability below:

The picture above depicts that the economy depends on the social life, and both the economic and social life belong in one environment (Giddings et al, 2001; Hart, 2006; Willard, 2009). Those three aspects are inextricably linked and important to accomplish the quality of sustainable university.



Picture 1. Diagram illustrating the model of sustainability

*Source:*Giddings, *et al.* (2001)

(a) Environment Sustainability

The growing number of human population results at the increasing use of resources to fulfill human needs. Therefore, it is essential to conserve and manage wisely the resource. Bardaglio and Putnam (2009) argue that to encourage the decision making in the university, it is imperative to adopt the environmental sustainability as one of the key strategies in the higher education.

(b) Social Sustainability

The sustainability model should focus not only on the environmental aspect but also on the social aspect. According to Seymour and Walker (2008), we as a society have a desire to protect and preserve resources for our future generations. It seems that social interaction among people is needed. Goodland (1995) argues that the active community participation enables the accomplishment of social sustainability. Goodland (1995) also discusses the importance of building communities, developing their culture, respecting diversity, upholding tolerance and participating in a number of activities related to the preservation of social life. Additionally, the university needs to demonstrate a social commitment and involvement to provide equal access to resources. The active social involvement illustrates that the university stakeholders together with the students has created a sustainable living (Bardaglio& Putnam, 2009).

(c) Economic Sustainability

The role of economic aspect is as important as the role of environmental and social aspects in the sustainability model. Without the economic aspect that is crucial to the society development, then both the social and environmental development are unlikely to be achieved. Daly (1996) utilizes the term "sustainable development" and "smart growth" to indicate the need for adequate economic perspectives in the social and environmental issues. Daly (1996) also argues that sustainability

requires a radical change of economic growth or commonly known as the "steady-state economy."

2.4. Approaches for Achieving University Sustainability

Various approaches have been performed to assess the sustainability in the higher education institutions. These approaches have diverse scope and methodology and evaluate separately the educational and research aspects (Yarime and Tanaka, 2012). Meanwhile, Wals and Jickling (2002) there shall no restriction to any approach used to assess the sustainability in the higher education institution. Jain and Pant (2010) state that the university should be capable proficiently to raise public awareness of how the sustainability can be integrated in everyday life.

In several universities, the endeavors to achieve sustainability focus only on the controlling of water, gas emissions and waste disposal. Nevertheless, the more complex development of environmental issues requires such a more comprehensive approach as environmental management to not only reduce the resource consumption and negative impacts of activities performed in the universities but also promote university sustainability (Alshuwaikhat and Abubakar, 2008). Clugston and Calder (1999) state that to implement sustainability in the higher education, it is necessary to have comprehensive approach and encourage higher education institutions moving more effectively and consistently with the sustainability of the system. Hence, a holistic assessment consisting of academic programs, institutional collaboration with stakeholders is needed (Yarime *et al.*, 2002).

The most commonly used approaches are the Green Building Approach, ISO 14001 and EMAS (Alshuwaikhat and Abubakar, 2008). The Green Building is an approach designed to not only reduce the production of waste and hazardous materials to the environment, energy use but also make the universities' buildings as the energy efficient buildings. Indeed, the main objective of this approach is the efficiency of the resources used in the building. Meanwhile, the ISO 14001 is an approach implemented by many universities in the United States and Europe. It guides the organization in managing the impact of the performed activities on the environment and becomes one of the international approaches used to assess the environmental management process. Additionally, the Eco-Management and Audit Scheme (EMAS) approach was developed in 1993 and designed to bring changes in the environmental performance (Alshuwaikhat and Abubakar, 2008). Other than the initially mentioned approaches, there is a comprehensive approach model presenting the attempts to accomplish the sustainable university named "Integrated Approach Model (Alshuwaikat and Abubakar, 2008).

2.5. Integrated Approach Model Towards University Sustainability

The university is an integrated community, in general, the students learn from the activities performed around them (Cortese, 2003). This integrated community can

be a model of social and biological sustainability as it takes an integrated link among teaching, research, operations and relations with the external community.

Cortese (2003) and Alshuwaikhat &Abubakar (2008) develop the integrated approach to achieve the university sustainability associated with the three responsibilities of Higher Education. This integrated approach adopts three strategies of integrated manner, namely (i) Implementation of University Environmental Management System (EMS), (ii) Community Participation and Social Responsibility, and (iii) Teaching and Research about Sustainability. Each of these strategies aiming at achieving the university sustainability mission as described in the figure framework below:

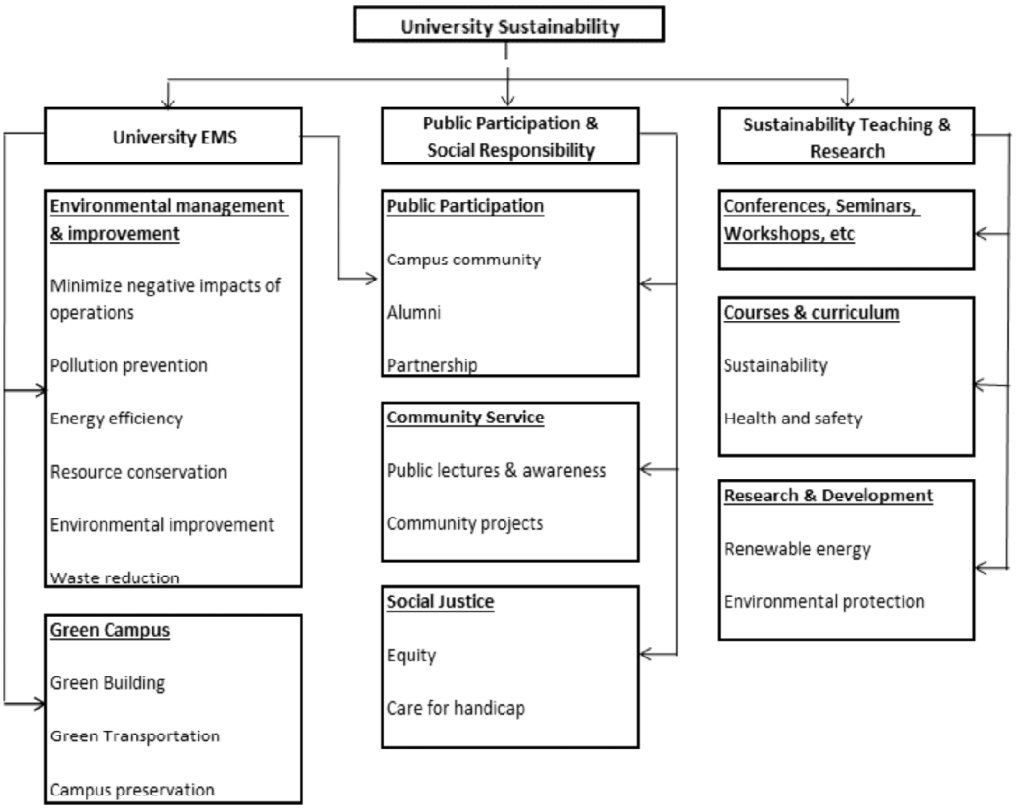


Figure 2: The Framework of the Integrated Approach to Achieve University Sustainability

Source : Alshuwaikhat&Abubakar (2008)

(i) University Environmental Management System (EMS)

EMS consists of practices, procedures, processes and resources to develop, implement, achieve and maintain the university's policy in achieving the

sustainable environment. EMS is an approach managing environmental problems and giving responsibility to the university to implement practices and procedures reducing the negative impact on the environment. Bardaglio and Putnam (2009) argue that the environmental preservation should be adopted as one of the main strategies in college. EMS can be a solid foundation to not only shape, develop and review the university operation but also manage the environmental preservation and social responsibility (Piper, 2002).

EMS also provides a useful standard for identifying the measurable and assessed programs and indicators of environmental sustainability to determine the eco-friendly university operation. Alshuwaikhat and Abubakar (2008) articulate that the EMS practices can be conducted through the environmental management and development and the implementation of green campus concept (Green campus).

Environmental Management and Development

University EMS combines the organizational structure, procedures, and resources relating to the environmental management. Thus, it is important to raise the academic community awareness of the environmental sustainability and encourage them to responsibly involve in actualizing the environmental sustainability (Melnyk, *et al.*, 2003). These practices towards the environmental sustainability are performed through a constant and repetitive process along with an environmental audit on the achieved performance (Ridgway, 2005). The environmental management and improvement can be conducted through sensible usage of resource, waste management, minimizing the negative impacts of such activities performed in the universities as solving the transportation problems, reducing pollution, and the usage of eco-friendly products.

The implementation of EMS is expected to bring such sustainability changes as resource utilization, investment, campus development, technology application, and institutional change. This EMS implementation promotes the accomplishment of sustainable university with a healthy environment. Reducing the negative impact resulted from operational activities of the university, reduction of waste and emission, good economic performance through energy and resource conservation, renewable raw materials usage, efficient environmental management, fair learning environment, increasing sustainable welfare of campus community, equal opportunities in all learning areas and research, as well as participation in the development of campus sustainability (Alshuwaikat and Abubakar, 2008).

Green Campus

The University EMS and green campus effort are performed through the construction of green buildings and transportation facilities such as walkways,

bike paths and green areas, and the application of "Reduce - Reuse - Recycle" concept. The green buildings can reduce the consumption and increase the welfare of the university community. The energy efficiency goal of green buildings is providing better lighting, temperature and air quality contributing to a healthier environment. In the concept of green university, the efforts to save energy resources are performed through the implementation of electrical energy and water management using efficient energy equipment, renewable natural resource such as wind, solar and geothermal, and centralized control system for efficient usage of electronic tools. Meanwhile, water conservation is performed with collecting rainwater which is usable for irrigation.

In addition to the energy and water management, the waste management is conducted by recycling paper, cardboard, glass, plastic and metal, and then the recycled items are divided into several categories (Keith & Tchobanoglous, 2002). The recycling program enables the college to save the transportation cost, reduce the cost of waste disposal facilities, obtain revenue by the selling recycled items (Porter, 2002). In addition, in terms of waste management, the college can socialize the use of reused water bottles and give the unused office supplies to the needy. By reusing the recycled items, the university can reduce waste and improve economic profit (Keith & Tchobanoglous, 2002).

The ride sharing policies and transport policies such as provision of convenient public transportation, the use of bicycles, electrical vehicles and alternative fuels are the example of the implementation of transportation system aiming at reducing greenhouse gas emission (Kruenger & Murray, 2008). Indeed, the implementation of this transport system will reduce traffic jams and solve the parking space problems (Havlick & Toor, 2004). The procurement initiative of eco-friendly alternative transportation is a proper mode of transportation with minimal impact on the human health and environment (Kruenger& Murray, 2008).

(ii) Public Participation and Social Responsibility

The strategy focuses on the participation of stakeholders in achieving the university sustainability and responsibility promoting the creation of social justice. The social justice in the context of university sustainability refers to the importance of human dignity, equality, peace, justice and health. To accomplish the credibility as a sustainable university requires cooperation with government agencies and other institutions in fostering campus sustainability (Alshuwaikhat and Abubakar, 2008).

Public Participation and Cooperation

The efforts towards university sustainability include the cooperation with government, private sector and non-governmental organizations, research and development, seminars, workshops and conferences about sustainability, and

discussion groups with stakeholders aiming to get feedback on the process towards the university sustainability.

Community Service

Sustainability initiatives are active participation in the community service activities, research and development, fostering the campus sustainability, cooperation with local communities, and creation of campus environment as a community center.

Social Justice

The universities need to educate the public on the importance of human dignity, equality, justice, security, health and safety in the sustainability context. The initiatives to raise public awareness of social justice are performed through the provision of academic services providing special facilities for the disabled students in research and teaching activities. Other than maintaining good relations and positive image, the university needs to compare well one educational institution to another; accordingly, the university can evaluate how excellent its performance compared to the other universities, and assess the progress in the implementation of green practices to the external community.

(iii) Teaching and research about the sustainability

The university carries education, research, and public service mission; therefore, it has a social responsibility to educate the students and community on the sustainability concepts. The colleges and universities is the reliable institution to raise public awareness of the environmental conservation and sustainability (Halfacre-Hitchcock & Owens, 2006). The universities are centers of innovation and idea development such as the ideas on how sustainability can be integrated into daily life (Jain & Pant, 2010).

Alshuwaikhat and Abubakar (2008) mention that the practices towards the university sustainability are incorporating the sustainability concept into the education and learning system, performing varied seminar, workshops, scientific activities, and research and development.

Education

The main mission of the university is to educate. In relation to the sustainability, the university must educate the entire academic community to actively participate in internalizing the university sustainability. The inclusion of sustainability concept on the educational program aims to integrate the sustainable values into all learning aspects; therefore, it alters public behavior.

Blackburn (2007) also states that the university is the institution where the future leaders are equipped with information, facilities, and skill to realize long term commonweal. As Nelson Mandela articulates that "Education is the most powerful weapon which you can use to change the world". Using Mandela's ideas, the education can certainly promote the sustainability concept to the community. The higher educational institution is expected to not only teach how one's act has direct impact to the surrounding environment (Orr, 2004) and becomes a model for the surrounding communities but also present the management and implementation of better sustainability. The issues on sustainability provide the higher education with an opportunity to be an institution educating the public on the sustainability model (Franklin *et al.* 2003). The education on sustainability model is performed by creating a sustainable teaching system, integrating the sustainability concept into courses and curriculum. Now, many universities are developing the sustainability model in their curriculum (Davis *et al.*, 2010). The efforts to integrate the sustainability model in the curriculum have expanded significantly over the last few years and continue to grow rapidly (Blewitt Cullingford, 2009).

Several sustainability issues that can be integrated into the curriculum are environment preservation, economic empowerment, gender equality, good governance, resource conservation, global warming, health and safety, and other social and economic issues. Various methods can be created to integrate the sustainability model into the curriculum and the simplest method is adding both sustainability concept into existing course and several specialized subjects on the sustainability. Development of new academic program leading to professional certification at the undergraduate, graduate and doctoral degree is the further development on the integration of sustainable concepts into academic curriculum.

Scientific Activities and Meeting

In addition to the integration of sustainability concept into academic teaching, such varied scientific activities as seminars, conferences, focus group discussion and workshops provides mind-stimulating discussion and learning process on socio, economic, and environmental sustainability. These scientific activities more specifically will lead to not only the discussion on best practices towards good governance, poverty alleviation, gender equality, and managing global warming but also ideas to succeed those socio-economic and environmental sustainability.

Research and Development

As the educational institution, the colleges and universities are the most reliable institution to conduct scientific research and development on sustainability (Cortese, 2003; Bartlett & Chase, 2004; Orr, 2004; Creighton Rappaport, 2007). The academic activity such as scientific research and development on sustainability

results many studies on the environmental sustainability (Aber, Kelly, & Mallory, 2009). The universities can find effective methods to solve the issues of social, economic and environmental sustainability such as climate change, poverty, less developed infrastructure, gender inequality, and illiteracy through the scientific research and development. An additional reason for continuous scientific research and development is new innovation to solve such issues on social, economic and environmental sustainability. For example, the scientific research on renewable energy resource generates the innovation of power grid integrating wind and solar energy. This innovation on renewable energy resource reduces the Pb and CO2 emission level. Lastly the scientific research and development should focus on the basic human needs.

2.6. The implementationprocess of the University Sustainability Initiative

The implementation process of various efforts and initiatives towards university sustainability is a complex practice (Rasmussen, 2011). There are several obstacles in implementing the initiatives towards university sustainability such as time and resources, lack of funds, leadership and manager commitment (Ferrer-Balas *et al.*, 2008; Filho, 2011, 2009; Holmberg and Samuelsson, 2006; Moore, 2005). The success in implementing initiatives towards university sustainability requires certain considerations as following:

Sustainability Vision, Mission and Objectives

A college must have a well-defined vision, mission and objectives to achieve recognition as a sustainable university (Alshuwaikhat and Abubakar, 2007). Velazquez, *et al.* (2006) defines four phases of implementation process towards university sustainability which are the vision and mission development, policies establishment, goals and objectives and initiatives development in research and education.

Policies, Targets and Planning Supporting University Sustainability

Norton *et al.* (2007) explains that the university planning influences the social, economic and environmental development. Thus, the planning towards university sustainability must be based on the university's missions, provision of university's facilities and university' physical characteristics particularly in terms of land allocation. In the process towards university sustainability, the campus physical planning requires special consideration. For example, the appropriate selection of new building location which is significant to improve the environmental sustainability affects the mode of transportation, water and lighting needs, as well as waste management. In particular, the proper planning and physical design of the building can maximize land use and provide easy access for pedestrians, cyclists and mode of public transportation. The formulation of new policies, targets and

planning supporting university sustainability should prioritize the three sustainability pillars on social, economic and environmental preservation as those three sustainability pillars prevent any possibility of drafting policies having negative impact on the university sustainability.

University Culture and Values on the sustainability

Efforts in implementing an integrated sustainability university model will be more easily implemented if the university culture and values on sustainability has been developed and cultivated (Bartlett & Chase, 2004; McGonigle & Starke, 2006; Blewitt & Cullingford, 2009). Stakeholders, that is lecturer, students, administrative personnel up to the rector of the university has a role in the cultural and value formation process. This process is necessary for the implementation of various universities sustainability efforts in order to become a transformative process that requires a high level of collaboration of various university constituencies (McKenzie-Mohr, 2011).

Resources Readiness (include financing, human resources and infrastructure)

Funding problem is often a challenge for educational institutions, especially in investment decision to support the implementation of the sustainability university concept. Implementation of green campus concept, particularly those related to campus facilities, requires a large initial investment from university financial resources (Bardaglio & Putnam, 2009; Barlow, 2009). Lack of funding can be a major barrier to implementing sustainability universities initiatives (Blackburn, 2007). Therefore, it is important to be able to identified initial source of funding and made the proper arrangements related to the use of these funds.

A university should have a special part within the organization who is responsible for providing the necessary resources to achieve the vision of the sustainability. With the existence of this part, the integrated sustainability model implementing process as described above becomes easier (Alshuwaikhat and Abubakar, 2007). The establishment of appropriate organizational structure relies on proper placement of staff who is responsible for the work related environmental sustainability. Effective leadership is needed to make the campus sustainability initiatives implementation process become successful. Stakeholders from students, staff, and faculty up to the leaders and the rector has the lead role in this process. Some universities are putting staff in the position of "Sustainability Coordinator, Sustainability Officer or" Director of Sustainability "(Rasmussen, 2011). With the increasing number of universities that specifically employs staff with expertise in environmental sustainability to manage and implement green campus initiatives indicate that these institutions have a strong commitment on the issue of sustainability (Creighton & Rappaport, 2007). A study conducted by the Association

for the Advancement of Sustainability in Higher Education (AASHE) was published in 2008 with the aim to increase knowledge and understanding in the field of sustainability universities (Matson, 2008). Besides specialized staff who are placed for the implementation of sustainability university concepts, also required a sustainability committee that can influence the decision-making related sustainability universities issues in order to create synergy between the academic community (Creighton and Rapport, 2007). The role of the sustainability committee is to encourage communication and collaboration among all individuals involved.

Stakeholder Inclusiveness

The implementation process of sustainability university efforts it largely depends on how the individual changes in a college that cooperate to achieve agreed objectives. In this case it is important to involve stakeholders when setting goals for environmental sustainability (Wright, 2002; Bartlett & Chase, 2004). Involving various stakeholders including administrators, faculty, staff and students can assist in developing sustainability efforts. In addition, a growing number of stakeholders involved in a process, the more feedback that appear in the goal setting process (Olson, 2010).

Sustainability Declaration and University Commitment

Environmental sustainability movement has gained significant momentum over the last few years. The college is currently expected to commit to environmental sustainability (Hitchcock & Willard, 2008). One example from symbolism in higher education with regard to its commitment to the sustainability university initiatives implementing process is in the form of the Sustainability Declaration. By signing this agreement, the university leaders reveals a symbolic pledge to uphold a set of the sustainability values. The first symbolic declaration at the leading universities in support of sustainability is the Talloires Declaration and ACUPCC which is the first official statement of commitment made by the manager of the college. More than 350 colleges and universities have signed this declaration. The signing of the Talloires Declaration is a symbolic commitment to the sustainability in higher education that is recognized globally.

Further developments, "The American College and University Presidents Climate Commitment (ACUPCC) signed as symbolic agreement related environmental sustainability in higher education in the United States and Canada. ACUPCC started in 2006, and has been signed by more 675 colleges and universities. The university leaders are committed to taking the steps necessary to achieve climate neutrality and to educate students about sustainability. This process is known as climate action planning (Creighton & Rappaport, 2007).

"Imaging" as Sustainable University

It is important for universities at this time to maintain the green image. The college is in a unique position because, not only colleges and universities are expected to be "green institution", but they are also expected to become the main place where people learn about environmental sustainability (Simpson, 2008). Maintaining green image also includes efforts to communicate and convey messages to students and the community in many ways such as through the development of the sustainability website, publishing a newsletter, making a sustainability video, sending emails about the sustainability, implementation of various the sustainability-themed activities, and more. By showing a "green image", a college or university can better attract and retain more students, lecturers and support staff and the success of organization as a whole (Rasmussen, 2011).

Scott *et al.* (2012) identified ten steps that can be done so that the university is able to overcome the obstacles that exist in instilling sustainability concepts at the university, that is: (1) understand the existence of challenges and complexities in the sustainability universities effort; (2) sharpen the focus and understanding of the sustainability university; (3) ensure there is integration and alignment to support the sustainability university; (4) systematically monitor and improve the quality of existing sustainability programs; (5) draw up the sustainability efforts appropriately; (6) involvement of leadership institution; (7) implementing the concept of successful change management in educational institutions; (8) focuses on leadership capability; (10) implement a productive approach on leadership learning for professional development from the sustainability university leaders.

3. ANALYSIS AND DISCUSSION: BEST PRACTICES OF SUSTAINABLE UNIVERSITIES

Currently the number of universities that have been bearing the predicate of "Sustainable University" is increasing, particularly with the development of international organizations in the field of sustainability universities such as International Sustainable Campus Network (ISCN). ISCN forming a global forum that supports the exchange of information, ideas and "best practices" from several leading universities. ISCN give awards for the best university in the field of sustainability. To obtain an overview of sustainability concepts implementation at several leading universities in the world that has been predicated and was awarded as "sustainable university", author review the "best practices" that have been applied in some "sustainable university". The University is Osaka University, University of Western Australia, Brown University, National University of Singapore, University of Melbourne danChulalongkorn University which is besides of six university, to represent Indonesia, author choose University of Indonesia and Gadjah Mada University with the consideration that both universities have been bearing the predicate od "Sustainable University". University of Indonesia

even has developed a UI Green Metric, rankings that held to assess the university's commitment to build environmentally friendly campus infrastructure that is widely used by many universities in the world. GadjahMada University itself is a university that founded the Student Community Services - Community Empowerment Learning (SCS-CEL), a program that deemed successful by UNESCO in sustainable development in the world of education.

In this paper the implementation of "best practice" in some sustainability university model were presented refers to the sustainability university model with an integrated approach of Alshuwaikat and Abubakar (2008). With this approach, sustainability university parameters are divided into three parameters, namely the implementation of EMS university, public participation and social responsibility as well as teaching and research on sustainability.

In implementation of EMS university parameter, the most widely performed by leading universities that are a commitment to reducing greenhouse gas emissions resulting from the activities of university, to make efforts to reduce energy usage of water, electricity and gas, recycling of waste, develop guidelines and standards building associated with sustainability and make a long-term planning to support sustainable development. Within the public participation and social responsibility parameters, sustainability initiatives the most widely performed is do a good cooperation with the government, industry and society in the national and international scale, conduct a planning program that could lead to social interaction, and maintain a healthy, safe and comfortable work environment. Whereas the last parameter that is teaching and research, leading universities do more sustainability initiatives in conducting research and educational activities related to sustainability. Detailed overview on "best practices" review that have been done by several leading universities is shown in **Appendix 1** and **Appendix 2** of this paper.

Some from these universities explicitly show how they really promote sustainability in all aspects, including in terms of how they inform about any existing programs at their university with an emphasis on the word sustainability including through the creation of special "sustainability website ", for example, that reflected from Melbourne University and Brown University website (available in appendix). At Melbourne University website can be seen that the concept of sustainability has become a major focus. In the "Sustainability Website" shown that Melbourne University has programs that focus on energy management, waste management, water management, transportation management which focuses on sustainability by making policy in cycling, walking and public transport use. In addition, another sustainability main focus is innovation and biodiversity. At Melbourne University website also shown the development planning timeline.This plan mapped out every commitment in the strategy and relevant policies and identify priority actions to be taken. In addition, here are also shown information about sustainability awards.

On Brown University website presented information about initiatives, projects and research conducted and the environmental mission explanation and also goals to be achieved. This website also contains information about sustainability initiatives performed in terms of infrastructure, campaigns and activities related energy and water saving, waste management and transport.

In addition Sustainability report is also displayed and can be downloaded on the Brown University website. Sustainability Report which inform the achievement of Brown University related to the purpose and sustainability initiatives process is also a proof of the sincerity and commitment to improving the sustainability performance of universities.

4. CONCLUSION

Implementing a comprehensive sustainability university initiatives requires some changes, including individual changes in habits or routines (Creighton, 1998; McKenzie-Mohr, 2011). Higher educational institutions with their responsibilities to implement three responsibilities of higher education plays a key role to overcome the problems that could trigger a sustainability crisis. To meet this expectations, it is important for education, research and social contributions are integrated together which then promoted and strengthened in the institutionalization process. Universities must be able to act as a teaching and learning center and accomodate the needs of all learners and serve as a community center to promote sustainability. Universities are also must be able to work together with all members of community and promote partnerships and collaborate with all stakeholders in policy making and environmental planning, sustainability social and economic for learning and research.

This integrated model approach proposed to achieve sustainability university that can help the university to improve operating efficiency, learning process and other processes, raise awareness about enviromental impacts and build the image of the sustainability university related university social responsibility in its role in running Tridharma University. An integrated approach to promoting sustainability is a comprehensive way to deal with issues related to sustainability (Herremans and Allwright, 2000).

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Appendix 1. Best practices of Sustainable Universities

Osaka University

At the University EMS sustainability initiatives conducted by reducing CO2 emissions, reducing energy use, reducing waste, recycling, reusing items that are still usable, the renovation of buildings for energy savings, sustainable development long-term planning, replacing the use of a car into a monorail, bus or bicycle and campus land planning. Osaka University conducted teaching and research parameter by conducting education campaigns about the sustainability initiative, the existence of CEIDS and research programs to incorporate the concept of energy savings in the curriculum and hold a meeting to discuss the development of environmental campus. Meanwhile, related to Participation & Social Responsibility, Osaka University in cooperation with the government, holding seminars and study about energy savings, providing a sustainable development fund, the existence of "Green Loan Program" and provides research fellowships.

University of West Australia

In the University Environmental Management System parameter, sustainability initiatives undertaken by the University of West Australia is to reduce carbon emissions, reduce energy use, the installation of LED lamps, the efficiency of the computer use, eliminate waste, create a guide to the green building development, planning the sustainable building, making integrated

transport strategy, conduct a sustainability transportation project and land use planning. Sustainability Teaching & Research parameter conducted by "Green Building" program socialization, a sustainable development policy, providing service of teaching, doing research on transportation and provide digester bio facility. While the parameters of Participation and Social Responsibility conducted by civilize society to be involved in a social environmental, do EnviroFest, formed a volunteer activity center, providing access for the disabled; the provision of conservation, applying the ISCN-GULF indicators; Princeton's reviews GreenSchool and formed an advisory committee of energy and the environment and implement the "Director of the Sustainable Energy & Environmental Inititatives overseas sustainability" program.

Brown University

At Brown University, sustainability initiatives undertaken in the University Environmental Management System parameter is reducing greenhouse gas emissions, reducing energy use and water, set standards of energy use, use the natural resources energy, reducing the amount of paper consumption, using environmentally friendly products, buy goods that still worthwhile to use, donated goods that are not in use, reducing the cost of waste, waste diversion, recycling, applying green building standard, integrating the landscape design of the building, the implementation of requirements "site waste management plans", expanding the area of green land, long-term financing planning, make the university as a place that is convenient for pedestrians, providing plenty of open space, expand the scope of planning, bike sharing policy, integration of urban mobility, reducing the parking lot and avoid construction of new buildings. Initiatives on Sustainability Teaching & Research parameters conducted by including sustainability concepts in the curriculum, the identification number of sustainable courses, conduct participatory teaching and a green laboratory program. Whereas the last parameter that is Participation & Social Responsibility, sustainability initiatives conducted with programs that can connect facilities, research and education, combining multiple disciplines to conduct research, conduct projects that can connect users with industry, government and society, and projects that can lead to social interaction and change the behavior of the academic community, conduct internships and employment opportunities regarding the sustainability, food waste management, facilities for disabled, maintaining a comfortable working environment and committed to the external sustainability initiatives principles.

National University of Singapore

Sustainability initiatives in the University Environmental Management System parameter is done by reducing greenhouse gas emissions, obtaining "Water Efficient Building" predicate, waste diversion and recycling, the implementation of green building standard, reducing energy use, planning and reviewing these plans, improve access, comfort, and the feasibility of green transportation, renovate and create a conservation area. Sustainability Teaching &Research Parameter done by identifying the number of sustainability courses, conduct participatory teaching programs and conduct research and learning with the sustainability concept. In Participation & Social Responsibility parameter, sustainability initiatives conducted by helping the academic community who are in financial difficulties, to encourage participation of stakeholders in the preparation of the sustainability plan, create participatory planning, conducting projects and programs to connect users, industry, government and society, to create social interaction, and change the behavior, encouraging a multi-cultural environmental, creating a healthy and safe working environment, applying ISCN indicators, and making sustainability

initiatives by the Fair Trade Association of Australia and New Zealand (FTAANZ) and Australian Campuses Towards Sustainability (ACTS).

Melbourne University

In University Environmental Management System parameter, sustainability initiatives undertaken by Melbourne University by reduce energy use and carbon emissions, encouraging awareness of energy and water saving, reduce waste, develop recycling system, meet the "Sustainable Building Standard", long-term planning, ensuring existing transportation contributes to reducing emissions, and make DookieBushland. Whereas the Sustainability Teaching & Research parameters, the university took the initiative in carrying out activities on sustainability forum. In Public Participation & Social Responsibility parameter, Melbourne University create a social involvement planning, collaborate on sustainability unit, academic staff and students, creating a benchmark of social involvement, social involvement planning, making the university as "fair trade university", an integration policy of academic with operational issues, external sustainability initiatives and dedicating resources to sustainability.

Chulalongkorn University

Sustainability initiatives conducted by Chulalongkorn University on University Environmental Management System parameter is to reduce the use of polystyrene, to evaluate emissions, analyze, and monitor, evaluating energy usage, set limits energy use, evaluate and reduce waste, recycle and develop a recycling center waste, set the sustainable building standard, integrated landscape design of the building, make the percentage as sustainability initiatives coverage, providing specialized transportation, reduce vehicle traffic, urban mobility integration planning, estimate distances and energy use, renovate the building and to consider the impact of land use associated with biodiversity. In Sustainability Teaching & Research parameter, Chulalongkorn University identify the number of sustainability courses, hold a participatory teaching programs and research in reducing energy use and reducing hazardous waste. The last parameter, namely the Public Participation & Social Responsibility, sustainability initiatives of Chulalongkorn University is provide support facilities for academics and people with disabilities, provide educational opportunities to underprivileged students, conduct integrated planning, encourage stakeholders participation in the preparation of the sustainability plan, consuct program that connect the facilities, infrastructure, research and education and academia with industry, government and the community, conduct programs and research to improve discipline, create social interaction and change behavior, making the world class university and encourage the cross-cultural learning experience, open access to encourage integration, evaluation of the food supply chain and creating a healthy and safe working environment.

University of Indonesia

At the University of Indonesia , the University Environmental Management System parameter, sustainability initiatives undertaken by managing the sewage system, develop policies to reduce greenhouse gas emissions, using energy from natural resources, limiting the number of vehicles, limiting the parking area, organize and maintaining the distribution of electric energy, gas and water, conserve energy, reduce the use of paper, using efficient energy equipment, recycling, green building elements added, maintaining the ratio of open land area, providing buses and providing a place for cyclists and pedestrians. Sustainability related Teaching & Research parameters, sustainability initiatives at the University of Indonesia is not available. Whereas

sustainability initiatives undertaken in the Public Participation & Social Responsibility parameter is running a mitigation and adaptation program to climate change, create a sustainability website, and the support of funding agencies for activities regarding the sustainability.

GadjahMada University

In the University Environmental Management System parameter GadjahMada University optimizing electrical energy consumption and maintain the electrical distribution system, increase awareness of energy savings, developing electrical energy that environmentally friendly, planning development, overseeing the planning of the entire field studies, UGM green Bicycle, monitoring traffic flow, create a green area that equipped with eco-friendly facilities and the installation of water treatment and also a roof garden Tap water. In Sustainability Teaching & Research parameter, GadjahMada University create a green campus group, held a competition between departments or between faculties to conduct energy efficiency, including the sustainability concept in the learning activities, having industry software development and research in their fields of study and develop scientific discussion forums. Whereas the Public Participation & Social Responsibility parameter is done by holding seminars, workshops, conferences and training in the studies, conduct the learning process by doing collaboration of several disciplines, conducting community service programs, offering energy savings activities campaigns, and make a policy to support a university that is environmentally friendly and free from pollution.

Appendix 2: Analysis Report Table "Best Practice of Sustainable Universities"

Strategy	*Parameter*	*Sub Parameter*	*Criteria*	*Osaka*	*West Aussies*	*Brown*	*NUS*	*Melbourne*	*Chulalongkorn*	*UI*	*UGM*
University Environmental Mgm System (Env Mgm & Improvement and Green Campus)	A. Environmental Management & Improvement	Minimize negative impact of operations	Reducing the use of materials containing polystyrene						Reduce the use of polystyrene		
			Managing sewage systems by classifying types of waste							Managing the sewage system, organic and anorganic	
		Follution prevention	Reducing greenhouse gas emissions resulting from the activities of the university	Reducing CO_2 emissions	Reduce carbon emissions	Reducing greenhouse gas emissions	Reducing greenhouse gas emissions	Reduce energy use and carbon emissions according to the target	Evaluate emissions from transportation activity	Develop policies to reduce greenhouse gas emissions and creating a smoke-free environment	
		Energy efficiency	Perform every effort to reduce energy usage of water, electricity and gas	Reducing energy use	Reduce energy use, the installation of LED lamps	Reducing energy use and water, set standards of energy use	Reducing greenhouse gas emissions and energy use, obtaining "Water Efficient Building" predicate	Encouraging awareness of energy and water saving	Set limits energy use, evaluate and reduce waste	Organize and maintaining the distribution of electric energy, gas and water, conserve energy	Optimizing electrical energy consumption , maintain the electrical distribution system, increase awareness of energy savings

		Developing sources of energy that comes from natural resources			Use the natural resources energy			Using energy from natural resources		Developing electrical energy that environmentally friendly
		Reducing energy use in labs with efficient use of facilities	Reducing energy use in laboratory	The efficiency of the computer use	Reducing energy use and not sacrificing safety					
	Resource conservation	Reducing amount of paper consumption			Reducing the amount of paper consumption			Reduce the use of paper		
		Using environmentally friendly products			Using environmentally friendly products			Using efficient energy equipment		
		Buying worthwhile goods, donating unused goods			Buy goods that still worthwhile to use					
	Environmental improvement	Paper reuse								
	Waste Reduction	Reduce waste generated from activities in the university	Reducing Waste	Eliminate waste	Reducing the cost of waste		Reduce waste	Recycle		

			Evaluate the laboratory waste					Evaluate the laboratory waste			
			Reducing hazardous waste from research and IT equipment						Reducing hazardous waste from research and technological equipment		
		Recycling	Recycling of waste	Recycling and reusing items that are still usable		Waste diversion and recycling	Waste diversion and recycling	Develop recycling system	Develop a recycling center waste	Recycling of toxic waste	
	B. Green Campus	Green Building	Prepare guidelines and standards that support sustainability of buildings		Create a guide to the green buiding development	Applying green building standard	The implementation of green building standard	Meet the "Sustainable Building Standard"	Set the sustainable building standard	Green building elements added	
			Integrating design and building dedicated to the concept of sustainability	The renovation of buildings for energy savings		Integrating the landscape design of the building, the implementation of requirements "site waste management plans", expanding the area of green land, long-term financing planning, make the university as a place that is convenient	Reducing energy use in the building with lighting and ventilation setting and mininizing the number of new buildings		Integrated landscape design of the building that supporting the sustainability process	Maintaining the ratio of open land area	

		Mace a long-tern planning to support sustainable development	Sustainable cevelopmen t long-term planning	Planning the susainable buiding	for pedestrians, providing plenty of open space		Long-term planning	Make the percentage as sustainability initiatives coverage (%)		Planning development
		Oversee and reviewing planning				Planning and reviewing these plans				Overseeing the planning of the entire field studies
	Green Transportati on	Restricting the use of motor vehicles	Replacing the use of a car into a monorail, bus or bicycle		*Bike Sharing*policy	Improve access, comfort, and the feasibility of green transportatio n		Providing specialized transportation, reduce vehicle traffic	Limiting the number of vehicles, limiting the parking area, providing buses and providing a place for cyclists and pedestrians	*UCM Green Bicycle*
		Creating an integrated sysem of susainable urban mobility		Making integrated trarsport strategy, conduct a susainabiit y trarsportai on project	Integration of urban mobility		Ensuring existing transportation contributes to reducing emissions	Urban mobility integration planing		
		Limiting the area used as a parking lot			Reducing the parking lot				Limiting the number of vehicles and parking area	

		Campus preservation	Conference, seminars, workshop, etc	Conduct research related to the frequency of traffic Estimating distances or estimate energy use	Campus land planning	Land use planning				Monitoring traffic flow
				Make a plan related to land management university				Planning in green environmental management and tree planting	Make *Bookie Bushland Reserve*	Create a green area that equipped with eco-friendly facilities
				Reusing and renovating land and buildings			Avoid construction of new buildings	Renovate to support sustainability	Renovate the building	
				Conservation area planning				Create conservation area	Conservation planning	The installation of water treatment and also a roof garden Tap water
Sustainability Teaching & Research	A. Scientific activites			Considering the impact of land use associated with biodiversity					Consider the impact of land use associated with biodiversity	
				Perform group activities in a sustainability forum					Carrying out activities on sustainability forum	Create a green campus group

			Perform group activities in a sustainability forum									held a competition between departments or between faculties to conduct energy efficiency
			Sustainability education campaign	Conducting education campaigns about the sustainability initiative	"Green Building" program socialization							
		B. Courses & curriculum	Sustainability	Including the concept of sustainability in the curriculum teaching			Including sustainability concepts in the curriculum, the identification number of sustainable courses	Identifying the number of sustainability courses		Identify the number of sustainability courses		Including the sustainability concept in the learning activities
				Conducting participatory teaching	Providing service of teaching		Conduct participatory teaching	Conduct participatory teaching programs		Hold a participatory teaching programs		
			Livable settlement									
		C. Research and Development	Renewable Energy									
			Environmental Protection									
			Climate change									

	Sustainability initiatives	Developing the software industry to support sustainability									Having industry software development to support sustainability
		Conduct research and educational activities related to sustainability	The existence of CEIDS and research programs to incorporate the concept of energy savings in the curriculum	Doing research on transportation and provide digester bio facility	A green laboratory program		Conduct research and learning with the sustainability concept		Research in reducing energy use and hazardous waste in laboratory / IT facilities		Conduct research in their fields of study, insert sustainability concept in the course
			Conducting a meeting to discuss the development of the campus	Hold a meeting to discuss the development of environmental campus				Carrying out activities on sustainability forum			Develop scientific discussion forums
Public Participation & Social Responsibility	A. Public Participatory	Providing university facilities to staff and students					Helping the academic community who are in financial difficulties		Provide support facilities for academics and people with disabilities, provide educational opportunities to the underprivileged students		
	Campus community										
	Alumni										

	Partnership	Encouraging stakeholders parciation in the preparation of susainability plan			Encouraging stakeholders' participation in preparing sustainability plan	Encourage participation of stakeholders in the preparation of the sustainability plan		Encouraging stakeholders participation in the preparation of sustainability plan		
			Cooperation with the government		Creating participatory planning	Creating participatory planning	Create a social involvement planning	Conduct integrated planning		Holding seminars, workshops, conferences and training in the studies
	B. Community Service	Public Lecturers & Awareness	Holding seminars and study about energy savings							
					Programs that can connect facilities, research and education		Collaborate on sustainability unit, academic staff and students	Conduct program that correct the facilties infrastructure, research and education	Running a mitigation and adaptation program to climate change	
		Conducting a project that connects the facility, research and education and to include a susainability group, academic staff and students								
		Conducting a susainability research			Combining multiple disciplines to conduct research			Conduct programs and research to improve discipline		Conduct the learning process by doing collaboration of several disciplines

	Community Projects	Creating a sustainability website	Developing the software industry to support sustainability							Create a sustainability website	Industry software development to support sustainability
		Creating a benchmark of social involvement						Creating a benchmark of social involvement			
		Held a community service program		Civilize society to be involved in a social environmental							Conducting community service programs and offering energy savings activities campaigns
		Cooperating with the government, industry and society in the national and international scale	Conducting research to reducing energy use	Do *EnviroFest*	Conduct projects that can connect users with industry, government and society	Concucting projects and programs to connect users, industry, government and society			Conduct program that connect academia with industry, government and community		Conducting national and international collaboration for each study
		Establishing a planning program that could lead to social interaction		Formed a volunteer activity center	Projects that can lead to social interaction	Create social interaction	Social involvement planning		Create social interaction program		
		Held a program to change behavior towards sustainability			Projects that can change the behavior of the academic community	Change the behavior toward the environment			Conduct program to change public behavior towards the sustainability		

		Internships and employment opportunities for students related to sustainability			Conduct internships and employment opportunities regarding the sustainability						
	C. Social Justice	Equity	Creating multicultural sm campus environment, eliminate discrimination and promote integration				Encouraging a multi-cultural environmenta		Making the world class university and encourage the cross-cultural learning experience		The existence of multicultural ism
					Accreditati on trade fair	Food waste management		Making the university as "fair trade university"	Evaluation of the food supply chain		
		Care for handicap	Providing facilities for disabled		Providing access for the disabled	Providing facilities for disabled			Provide disabled facilities		
		Health and safety work	Maintain a healthy, safe and comfortable work environment			Maintaining a comfortable working environment	Creating a healthy and safe working environment		Creating a healthy and safe working environment		The existence of work unit within the University that deal with a variety of student activities and student welfare.

D.Commitment and resources for campus sustainability	The availability of funding sources to support the sustainability of the university	Develop policies and implement campus sustainability assessment indicators	Providing a sustainable development fund The existence of "Green Loan Program"	The provision of conservation		Applying ISCN indicators			Make a policy to support a university that is environmentally friendly and free from pollution.
		Creating a sustainability initiatives, sustainability programs, scholarships, set up a committee, organization, etc.	Provides research fellowships	Formed an advisory committee of energy and the environment and implement the "Director of the Sustainable Energy & Environmental Initiatives overseas sustainability" program.	Committed to the external sustainability initiatives principles	Making sustainability initiatives by the Fair Trade Association of Australia and New Zealand (FTAANZ) and Australian Campuses Towards Sustainability (ACTS).	Integration policy of academic with operational issues External sustainability initiatives and dedicating resources to sustainability		