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# FACTORS AFFECTING THE INTENTIONS OF GREENING THE CAMPUS: A STUDY OF HANOI UNIVERSITY OF INDUSTRY

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**Abstract**

Recently, worldwide nations are actively pursuing strategies of green growth for restoration economy and long-term prosperity. In that process, universities play a vital role through the ability to influence the community. Green universities with sustainable development orientation will be an ideal environment for educating the young and raising the social awareness of environmental protection responsibility. Professional knowledge becomes practical actions for the young generation who take the nation future in their hands. Actions depends on their motivations and motives based on their own perception and knowledge. The study focuses on attitudes and behaviours related to individual perspectives for environmental responsibilities of lecturers, staffs and students of Hanoi University of Industry in their residential and working places. Their actions towards awareness of environment protection and their willingness of participation. The study was conducted through surveying 120 students and 60 staffs and lecturers of the university. Result analysis will provide an insight as a basis for developing green model and discover barriers to sustainable efforts of the university.

**Keywords: Green University, sustainability, perception, attitude, participation**

## Introduction

In 2016, according to the report of the United Nations Conference on Climate Change (COP 23) of the top 10 countries most affected by global warming and climate change, Vietnam raked fifth among the most severely affected countries (German Watch, 2016). Climate change threatens urban infrastructure and the quality of living, especially for people live in coastal areas. In recent year, acknowledge of the dangers, Vietnam Government has made some reform efforts to overcome the internal barriers towards sustainable development. Government has released the National Green Growth Strategy and action plan to 2020, which is expected to bring more important changes to successful implementation of sustainable development strategy.

Education is the key to the transition to a green economy because education will change the perception and thus, the behavior of individuals in the society, also

contribute to leader training in the field of green growth. The concept of green university refers to a university that conducts research, creates knowledge and innovation, applies clean technology solutions, educates high quality human resources with knowledge, skills and attitudes of sustainability, for the purpose of serving the process of green growth of the economy and the whole country (Nguyen et al., 2016). Numerous studies have suggested some barriers in the sharing and developing the model of green university. Difficulties derive from the lack of interest, commitment, and participation by community members (Bekessy, Samson, & Clarkson, 2007; Evangelinos, Jones, & Panoriou, 2009; Sammalisto & Arvidsson, 2005; Thomas, 2004; Velazquez, Munguia, Platt, & Taddei, 2006). Lack of resources and finance, lack of effective dissemination of information on sustainability and training courses in the organization and lack of recognition for individual contributions to organizational sustainability are also barriers to sustainable development strategies (Bellou, Petreniti, & Skanavis, 2017). Other barriers arise from commitment and management responsibility, university management structure. Therefore, the study of students, staffs and lectures' attitudes, behaviors and perceptions, behavioral habits towards environment both at work and at home, their perceptions for sustainability and their participation are all of absolute necessary. Their active involvement in environmental protection activities will allow universities to strategically design and face barriers and reinforce good practices to the implementing green university.

At Hanoi University of Industry, the implementation of the 5S model has had positive results in raising awareness and behavior of environmental protection within the campus, as well as improving participation of all university members. However, the green university is still a new concept for most students and staffs at the school. This research will focus on attitudes, behaviors and habits of environmental sustainability, perceptions and level of readiness of members in the school for the intention of implementing the green university model at the Hanoi University of Industry.

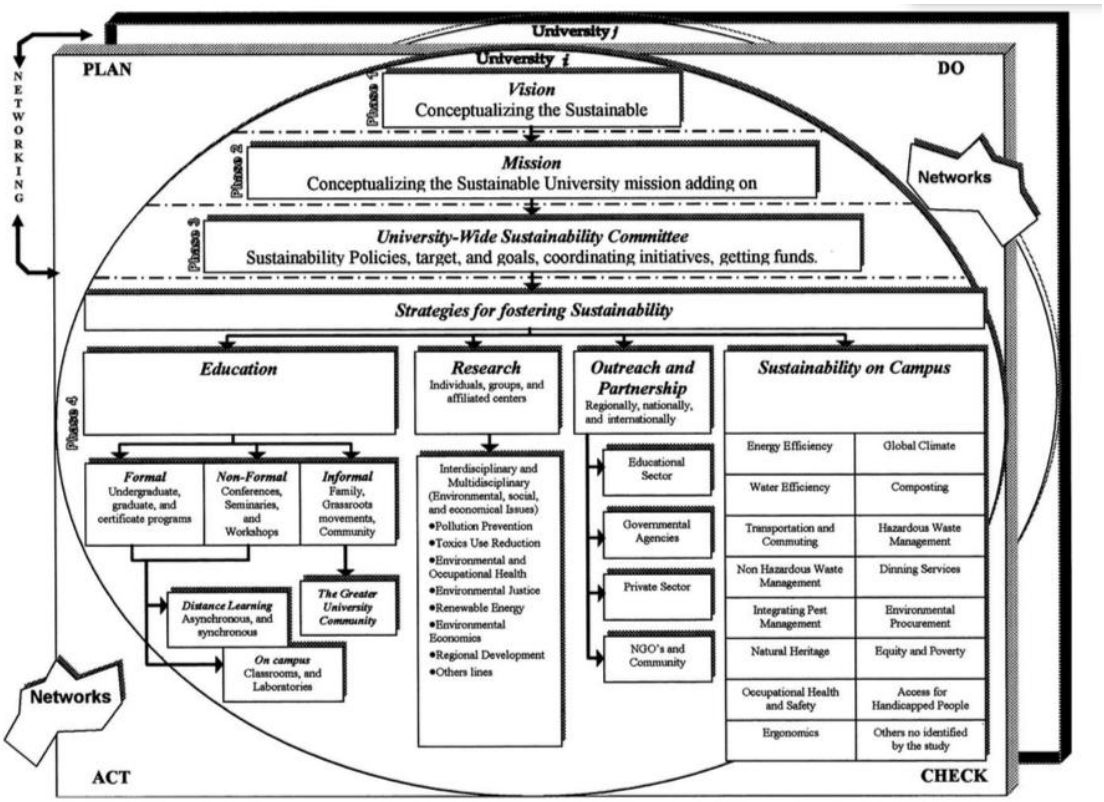
## Green University and its potentials

The model of green university is not only concerned actions that directly impact environment surroundings, such as emission reduction, garbage and waste management, energy efficiency and recycling but also focus indirect activities. The activities have indirect impact but long-lasting, such as community engagement, research and training programs, friendly-environmental ideas, green buildings and landscapes, energy-saving homes and renewable energy instead of using traditional energy sources.

Velazquez et al. (2006) proposed the first framework for green university in 2006. The model consists of 4 stages. The starting level begins with a vision of green development. At the second stage, goals and missions are specified. The third stage is establishing committees and councils in the university, followed by the last stage of planning and

implementing interactive activities including research, training programs, community support, and extracurricular activities associated with environmental protection on campus (see Figure 1). However, the model has not included the key components and stakeholders involved in a sustainable university model.

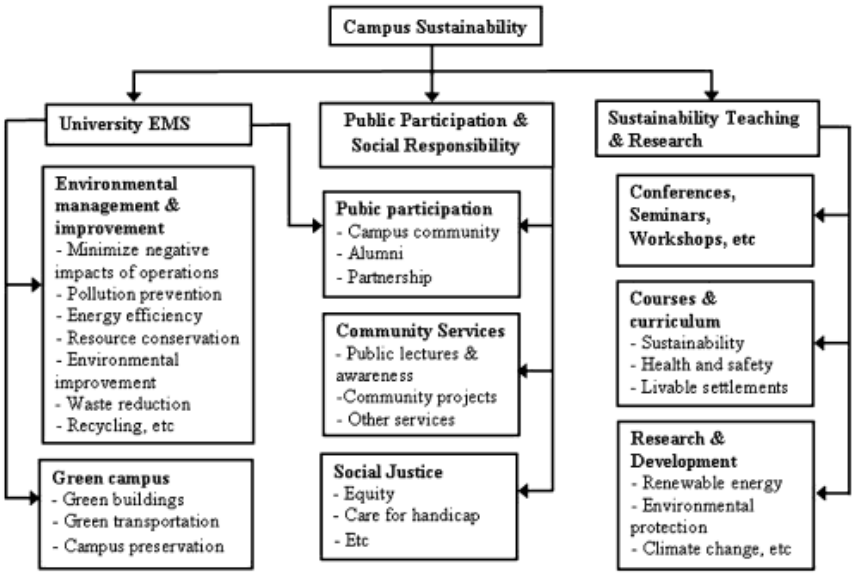
Figure 1. Green University Framework




(Source: Velazquez et al., 2006)

The sustainable model developed by Alshuwaikhat and Abubakar (2008) is more detailed than the previous model of Velazquez et al. The model has three main components: university's environment management, community involvement and social responsibilities, and research and education related to sustainable development (see Figure 2). The system of environment management covers procedures and resources for implementing and evaluating university's sustainable policies and targets. The involvement of communities and collaborations with government departments, private sectors and non-government organizations can cooperate with universities in research and development activities and organize workshops, seminars to discuss environmental issues, improve students' understanding and accountability towards environment sustainability. The advantage of this model is giving main aspects of sustainability, incorporating three components of a green university. This model, however, does not address the role of stakeholders among these components.

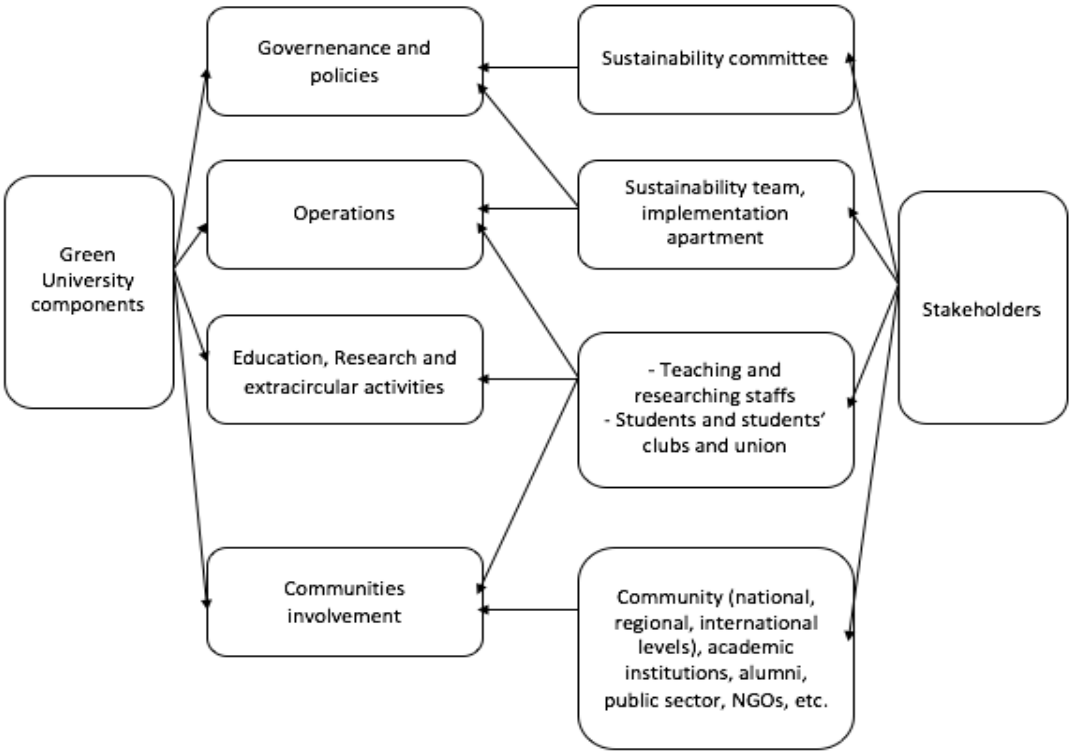
Figure 2. Campus Sustainability Framework




(Source: (Alshuwaikhat & Abubakar, 2008).

The model of green university in Vietnam is defined by an author team from Vietnam National University in 2016. Nguyen et al.(2016) defined green university as a planned, managed and operated university on a friendly environmental basis with long-term visions and sustainable development strategy. Green university includes 4 components and 4 stakeholders (see Figure 3). The first component is "Governance and policies". A green university should have sustainable vision, mission and strategies which are clearly displayed on the university website and implemented in action plans. A sustainable committee, including managers, leaders, lecturers, staffs and students play active role in monitoring and evaluating of how these vision, missions and plans have been implemented in practice. "Operations" term relates to facilities, buildings, campus, electricity, water usage, waste, transportation and purchasing of a green university. In this component, the stakeholders include lecturers, students, officers and staffs from various departments and faculties. The third category "Education, research and extracurricular activities" is known as the soft component of a green university. Education activities are compulsory courses, selective courses and extra-curricular activities, whereas research activities require to conduct research projects, publications and seminar/conferences on sustainable topics. Through a number of activities, the awareness towards sustainable development of in-campus members and local community will be increase. The final component is community involvement. University can be considered as a living lab where lecturers and students make experience and implement ideas to solve environmental issues. The implementation process need to take participation from government, NGOs, companies and other institutions. Besides, the networking with other organizations can help university to conduct further activities related to sustainable development.

Figure 3. Green University Framework in Vietnam




(Source: Nguyen et al., 2016)

Thus, universities play an important role in the process of promoting sustainable development and defending climate change. Univeristies with daily activities, such as consumption, service, discharge and operation are a modeling environment that gives pratical lessons for students to learn and understand how to implement friendly-environmental behaviors. Students will be future workforce who spread the ideas and act "green" to the whole society. Also, consumptions of materials, papers, food, energy or waste and greenhouse gas emissions from acititives of univeristy can have adverse impacts on the surrounding environment directly (Eagan, Keniry, & Schott, 2008).University's operation are required to be effecient to bring positive impact to the environment. More importantly, the social responsibities of univeristy are emphaszed (Viebahn, 2002) because university has mission of teaching and training young generations and raising community awareness about sustainable development through community involvement activities.

## Methodology

At Hanoi University of Industry, a sustainable development program is not implemented at this present time. Therefore, this study focuses on lecturers, staff members and students's environmental sustainability attitudes and behaviors both at work and at

home, their perceptions for sustainability enforcement and their active participation. The research participants were 60 lectuers and staffs working at 8 different faculties and departments and 120 students majoring in 11 studies at Hanoi University of Industry. The questionnaire was designed based on questions previously used in other similar surveys (Bellou et al., 2017; Davis, O'Callaghan, & Knox, 2009). The surveys used 5-Likert scale, consisting of 5 main sections as follows. The first section mainly requested demographic information such as name, age,positions, education, majors, number of studying years. The second section were investigating their general attitudes about sustainability and more specifically about the implementation of sustainability programs at the university to answer how familiar they perceive they are with the term of sustainability. The third section included questions about sustainability behaviour at school and at home. The fourth section considered how people perceive the adoption of a sustainability strategy by the university and their role in it. Lastly, the final section investigated their willingness to participate in activities related to sustainability on campus and their opinion about barriers that challenge the implementation of greening the university.

## Results and findings

Demographic data

Most respondents were students (66.67 percent) whereas 33 percent of respondents were lecturers and staffmembers. Among lecturers and staffs, 6.6 percent were managers, 71.7 percent were lectures and 21.7 percent were staffs (Figure 4,5,6).

Figure 4. Respondents' Ages

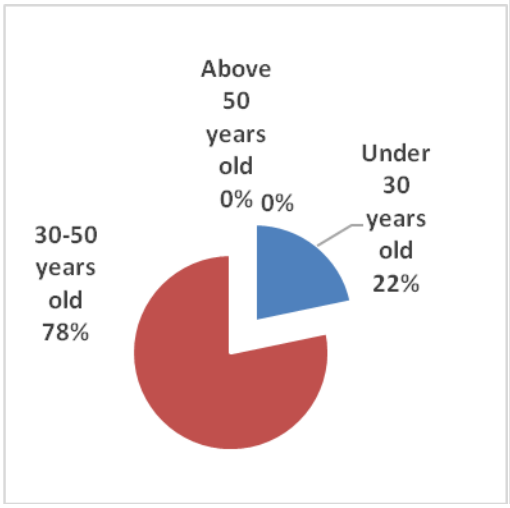



Figure 5. Job positions

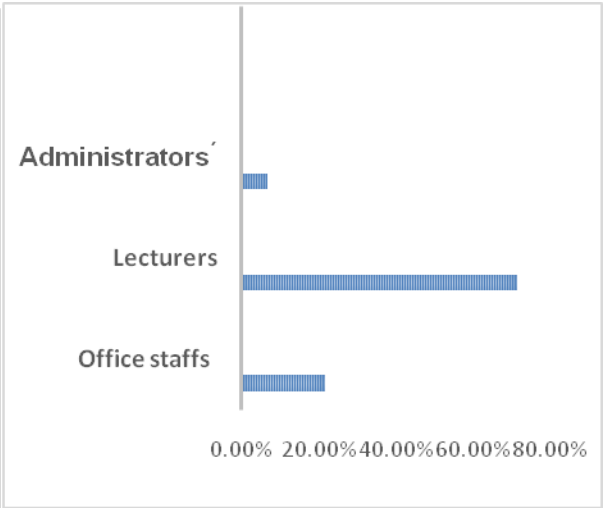
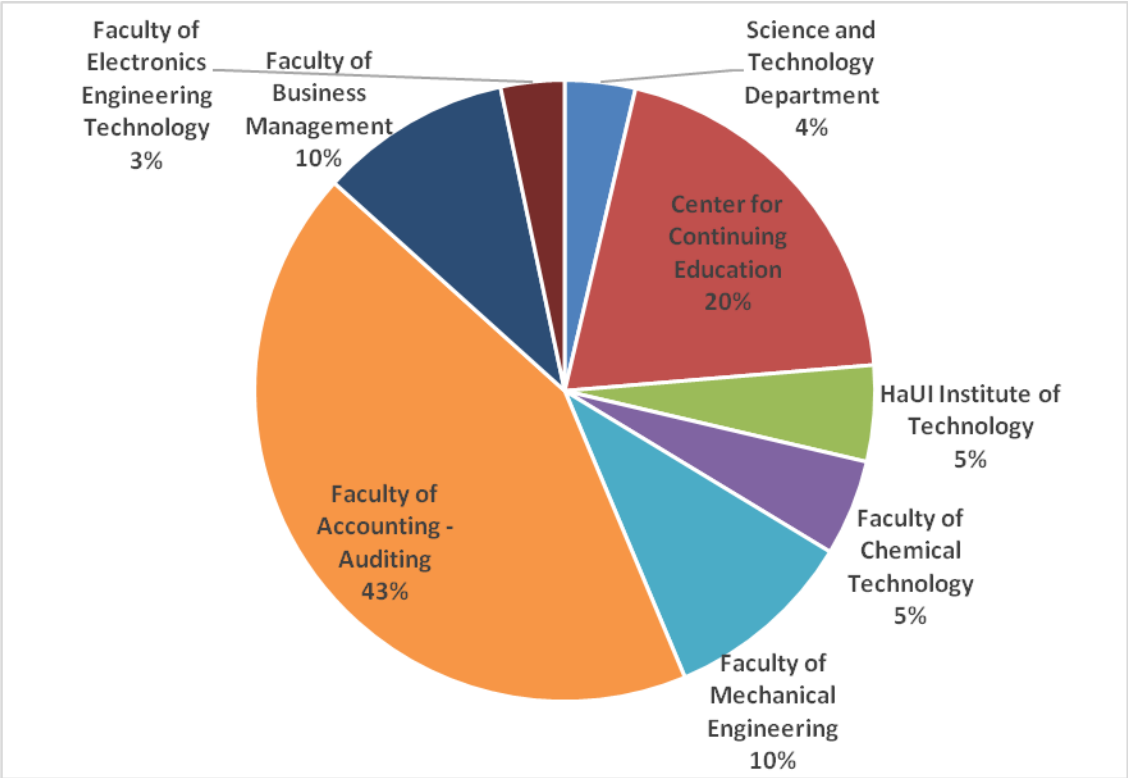


Figure 6. Working places and departments




(Authors compiled)

Among students, the highest proportion of the respondents were senior (60 percent), 27 percent were junior, 13 percent were sophomore and none were freshman (see Figure 7). The rate of students majoring in different studies was relatively equal (see Figure 8).

Figure 7. Study stages

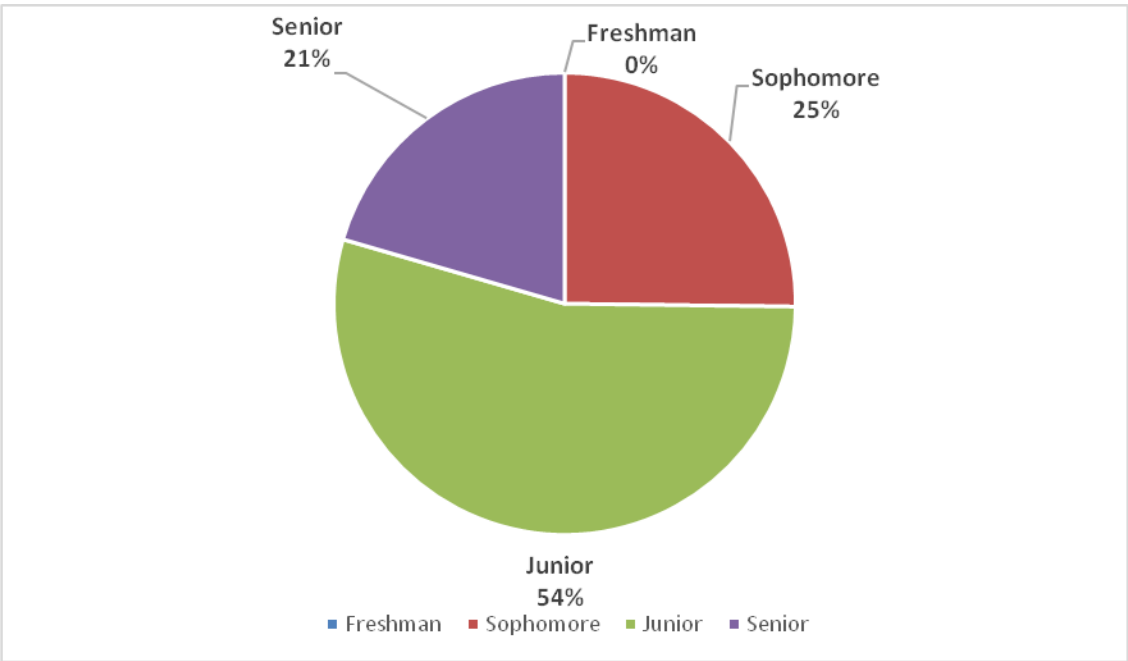
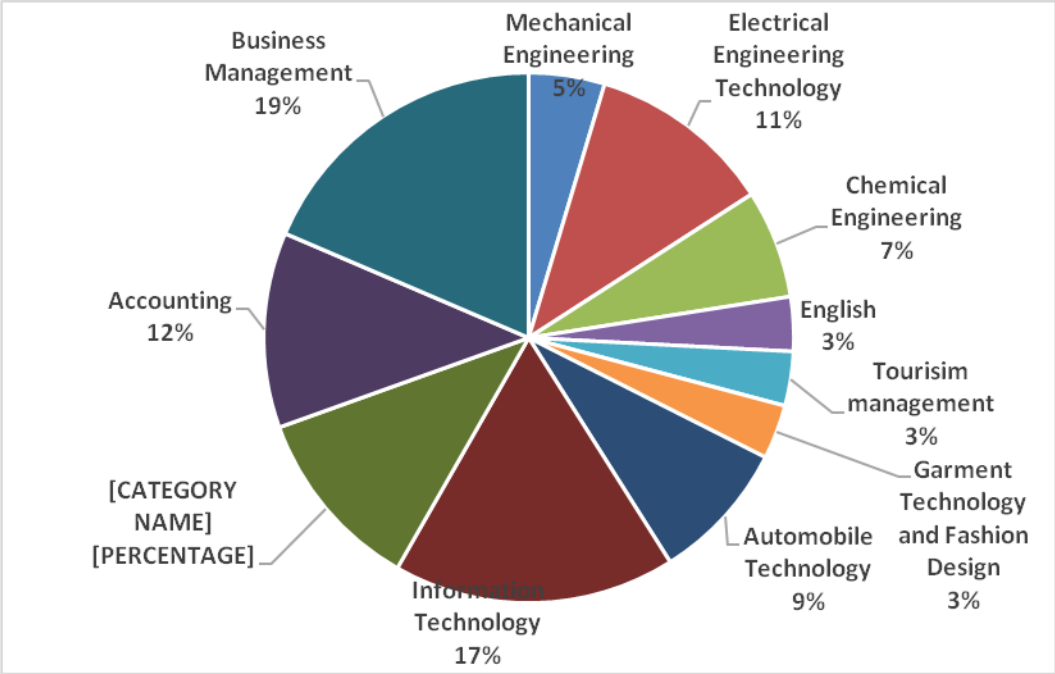


Figure 8. Student majors




(Authors compiled)

Attitudes towards sustainability

Most of respondents have strong positive attittudes towards sustainaility. Most of them are aware of their role in the university in terms of sustainable development (71.67% for staffs and 73,5% for students). They could enrich the existing administrative infrastructure with new ideas about environmental programs and activities.

The individual answers were rated from strongly disagree to strongly agree, with scores from 1 to 5, with 5 meaning the most environmentally friendly attitudes. It is worth mentioning that the attitudes towards environmentally friendly could be express with the higher scores for each statements (Table 1).

Table 1. Attitudes about sustainability

| | |
|---|---|
| | Lecturers and staff members |
| | Students |

| | Strongly disagree | Disagree | Uncertain | Agree | Strongly agree |
|---|---|---|---|---|---|
| I know that I have a major role in the University in terms of sustainable development | 3.33% | 3.33% | 21.67% | 51.67% | 20% |
| | 6% | 7.9% | 12.6% | 46.3% | 27.2% |
| I can give ideas to the University administration about environmental | 0% | 15% | 46.67% | 31.67% | 6.67% |
| | 2% | 9.9% | 30.5% | 38.4% | 19.2% |

| | | | | | |
|---|---|---|---|---|---|
| programs and activities | | | | | |
| I am always advising my friends to conserve | 0% | 5% | 8.33% | 55% | 31.67% |
| | 6.6% | 5.3% | 12.6% | 31.1% | 44.4% |
| It is only worth doing environmentally frienly things if I save money | 8.47% | 54.24% | 10.17% | 23.73% | 3.39% |
| | 32.5% | 25.2% | 15.2% | 12.6% | 14.5% |
| The effects of climate change are too far in the future to worry about | 41.67% | 41.67% | 5% | 3.33% | 8.33% |
| | 41.1% | 17.2% | 12.6% | 15.2% | 13.9% |
| It is not worth for me to do things to help the environment for the present and future generations | 38.33% | 46.67% | 3.33% | 22.67% | 0% |
| | 42.4% | 21.2% | 13.2% | 11.9% | 11.3% |
| It is hard to change habits to become more environmentally friendly | 10% | 40% | 20% | 26.67% | 3.33% |
| | 15.2% | 32.5% | 11.9% | 15.2% | 15.2% |
| We should always strive to protect and conserve the environment for the present and future generations | 1.67% | 5% | 10% | 45% | 38.33% |
| | 3.3% | 7.9% | 7.3% | 34.4% | 40.1% |
| We should move towards renewable and alternative sources of energy right now | 0% | 0% | 8.33% | 58.33% | 33.33% |
| | 4.6% | 7.3% | 9.3% | 47% | 31.8% |
| It is important to measure and report on sustainability | 0% | 3.33% | 28.33% | 51.67% | 16.67% |
| | 4% | 7.9% | 43% | 28.8% | 19.2% |
| Recycling preserves natural resources | 0% | 3.33% | 23.33% | 41.67% | 31.67% |
| | 4% | 7.3% | 9.3% | 43.7% | 35.7% |
| Recycling craets a better environment for future generations | 0% | 1.69% | 23.73% | 52.54% | 22.03% |
| | 4% | 4.6% | 13.2% | 37.7% | 40.5% |
| Recycling saves money | 5% | 1.67% | 30% | 36.67% | 26.67% |
| | 3.3% | 3.3% | 24.5% | 45% | 23.9% |
| Conserving natural resources is important | 1.67% | 3.33% | 1.67% | 61.67% | 31.67% |
| | 5.3% | 4% | 12.6% | 34.4% | 43.7% |
| I believe that my individual behaviors (for example turn off the lights in the office if I am the last or turning off the | 0% | 1.67% | 26.67% | 48.33% | 23.33% |
| | 2.6% | 10.6% | 20.5% | 33.8% | 32.5% |

| | | | | | |
|---|---|---|---|---|---|
| office computer) can have direct influence on the resource usage within my University | | | | | |
| I believe that the university is an environment pro-active organisation | 0% | 6.78% | 8.47% | 54.24% | 30.51% |
| | 3.3% | 7.9% | 14.6% | 41.1% | 33.1% |
| Recylcing takes up too much time | 10% | 36.67% | 26.67% | 23.33% | 3.33% |
| | 5.3% | 4% | 12.6% | 34.4% | 43.7% |
| Recycling takes up too much room | 10.34% | 37.93% | 32.76% | 15.52% | 3.45% |
| | 7.3 | 22.5% | 39.1% | 16.6% | 14.5% |
| I would be more likely to recycle my office paper waste if there were more facilities (such as recylcing bins) | 3.39% | 13.56% | 37.29% | 25.42% | 20,34% |
| | 2% | 7.3% | 13.2% | 48.3% | 29.2% |

When being asked to choose the three main reasons why the university should adopt a sustainability strategy, merely 100% of respondents showed a preference with the protection of the environment. Nearly hafl of them believed sustainability strategy can reduce the costs in the long run as well as recognize the impacts of daily activities on the environment.

| In your opinion, what are three main reasons that the University has to adopt a sustainability strategy | |
|---|---|
| To protect the environment | 96.7% |
| | 70.9% |
| To reduce its operating costs in the long run | 53.3% |
| | 72.8% |
| To recognize the impact of its activities on the environment | 35% |
| | 61.6% |
| To satisfy members of the University and the local community | 58.3% |
| | 57% |
| To meet external regulatory requirements | 21.7% |
| | 25.5% |

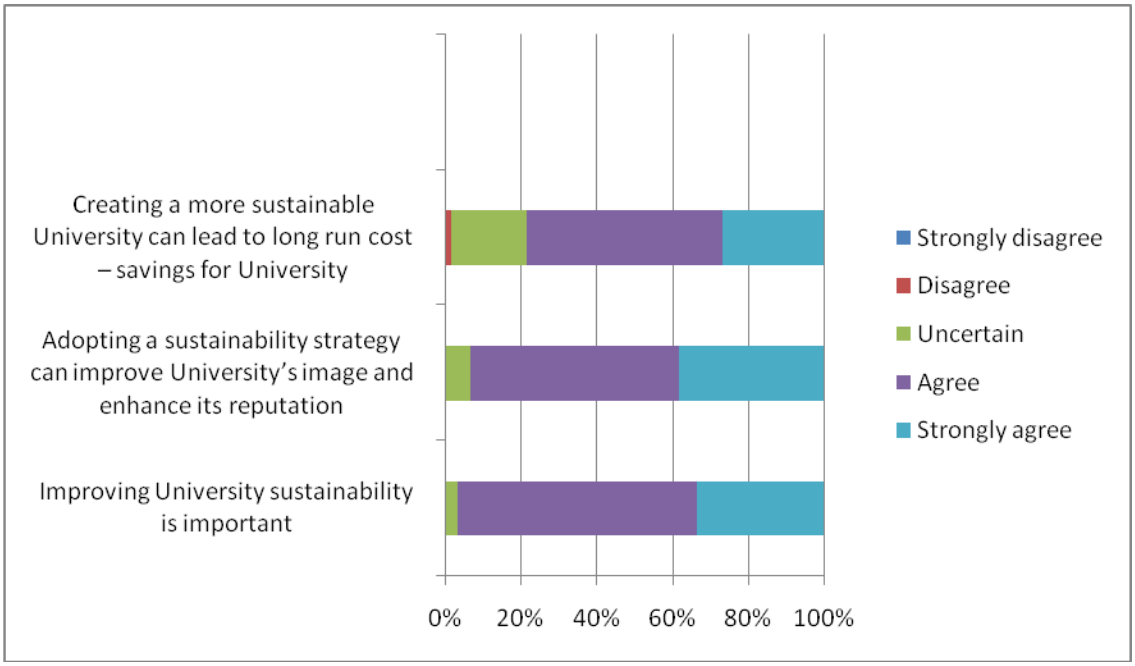
The barriers that most respondents (63.3% lecturers and staff members, 68.9% for students) thought that obstruct the implementation of sustainability strategy by the university, when they were asked to choose, was the lack of information and knowledge among members. Their second choice was lack of policies to promote sustainability on campus. For the other barriers, there were dissimilarity between the two groups. In views of lecturers and staffs, the third barrier was lack of time, while studnets voted lack of resources as their third barrier.

| In your opinion, what are the TOP three barriers, which would obstruct the implementation of a sustainability strategy at the University? | |
|---|---|
| Results are too far in the future | 38.3% |
| | 23,2% |
| Lack of data/information and knowledge among members of the University | 63.3% |
| | 68,9% |
| Lack of interests among members of the University | 31.7% |
| | 57% |
| Lack of resources | 58.3% |
| | 65,6% |
| Comunications problems | 56.7% |
| | 35,1% |
| Lack of time | 61.7% |
| | 26,5% |
| Lack of policies to promote sustainability on campus | 63.3% |
| | 27,8% |

Perception

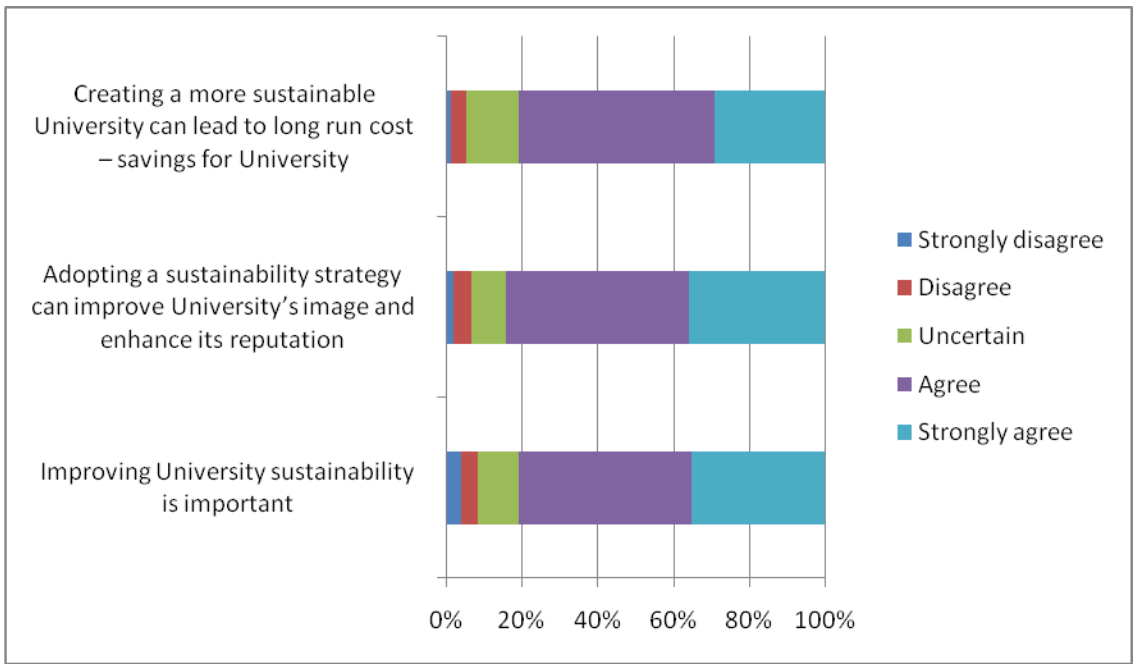
The majority of lecturrs and staffs agree that adopting sustainabilty can save long-run costs and improve University's image and its reputation. No one supported the absence of sustainability strategy and rejected the positive results of adopting sustaiabilty stretegy. They concured that improving university sustainability is important (figure 9).

Figure 9 . Lecturers and staffs' perception



Most of students had the perception of the university sustaibility adoption. Only few of students (roughly 20%) seemed uncertain about the outcomes of the University sustainabilty stategy (Figure 10).

Figure 10. Students' perception




Participation

The majority of respondents ( around 80% for both groups) were willing to participate in sustaibility intiatives by the University, spending their personal time.

Figure 11. Lecturers and staffs' willingness and participation

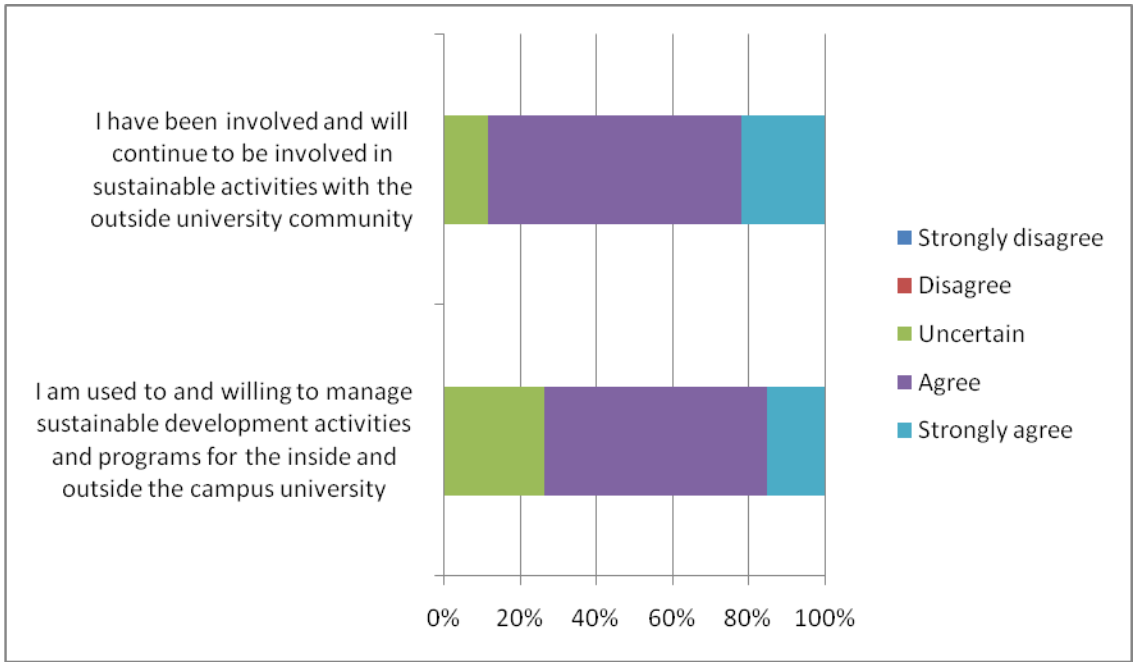
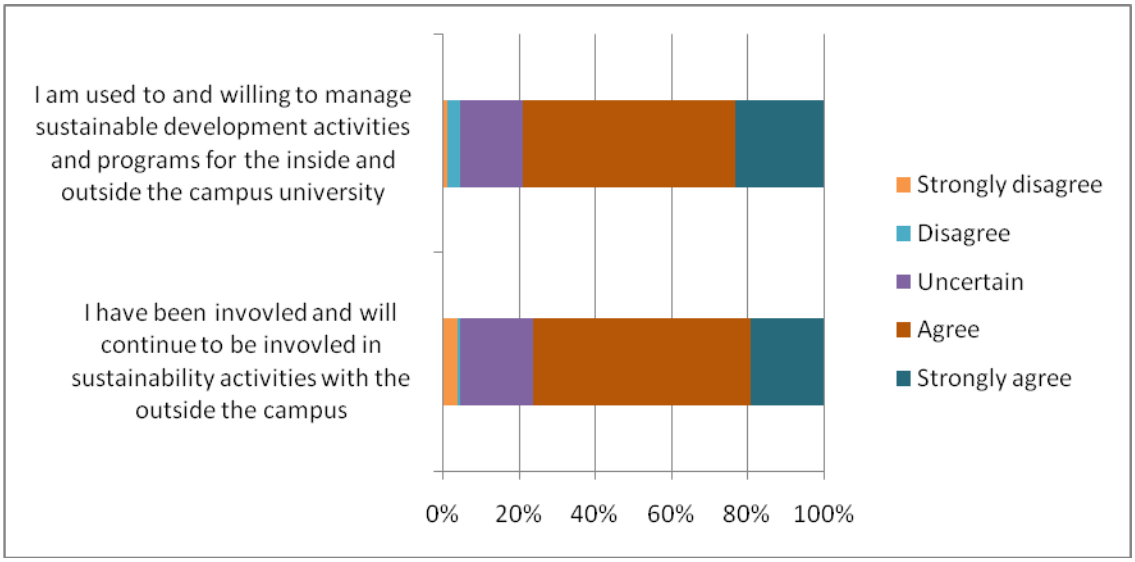


Figure 12. Students' willingness and participation




## Discussion

As shown by the results, respondents including lecturers, staff members and students of Hanoi University of Industry seems to have a pro-environmental awareness.They highly concern environment issues and protections. Their response on sustanability stategy is strong and they tend to behave more environmetally friendly at work and relatively positive about implementation of environmental rules.

The majority of participants think that the University should adopt a sustainability strategy, and they are willing to support it and participate in sustainability initiatives by the University. The most indicates lack of knowledge and experience about sustainable development activities has lessen the percentage of students who actively involved in sustainability activities outside the campus.

Also, most of respondents believe that the main barrier obstructing the implementation of sustainability strategy is the lack of data/information and knowledge among members of the University. It was also found in the researches of Bellou (2015), Ralph & Stubbs (2014), Wright (2010). The second barrier is the lack of University policies to promote sustainability on campus. Bellou (2015) also found that university policy programs and leadership and suppor were the most cited drivers for intergrating environmental sustainability. As was suggested by Bellou (2015), sustainability initiatives should be coupled with simultaneous efforts to strengthen the flow od information among campus members.

The education background of the participants probably play an important role in their answers. The most important differnces are presented in Table 2. The participants that are working in technological sciences seemed to be more famiiliar with the term sustainability that the rest with 40.1% rated from agree to strongly agree. Those who work in technology background also can enrich the university administration the ideas

about environmental programs and activities. They also highly appreciate sustainability innitiiatives as a volunteer, spending their personal time. Those who has background of business ranked the second, followed by natural sciences background. Social sciences seemed to be the least willing to support and participate in sustainability strategy of the University.

Table 2. Differences of participants' educational background

| Differences according to the participant's educational background | Natural sciences | Social sciences | Technological sciences | Business studies |
|---|---|---|---|---|
| I aware that I have a major role in the university in terms of sustainable development (strongly agree and agree) | 14.5% | 11.5% | 40.1% | 33.9% |
| I can give ideas to the university administration about environmental programs and activities (strongly agree and agree) | 17.9% | 12% | 42.5% | 27.6% |
| Do you think that the university should adopt a sustainability strategy? | 16.4% | 11.4% | 42.8% | 29.4% |
| Are you willing to participate in sustainability initiatives at the university, as a volunteer, spending personal time? | 16.8% | 11.2% | 42% | 30% |

## Conclusions

The intentions towards the implementaion of sustainability strategy at the University of Industry is positive. Besides, many respondents agree that they are willing to behave in an environment-friendly manner more if they have access to more data/information about the sustainability and environment issues as well as have clear university policies to promote sustainability on campus. Furthermore, the role of education on environment topics is greatly important. If students are adequately educated, they can

feel more invovled in sustaiability programs and campaigns. Implementing the sustainable university model is a process of continual improvement in environmental, social and economic performance that should be made through incremental steps. The process, also required major efforts by key stakeholders of the university community. Additional funds and resources must be allocated for sustainable intiatives. The starting point should be stating clear visions, missions and objectives. The university should create environmental policies to foster education for sustainability and then the staffs are all ready for engaging to further environmental actions. However, there is still a long way to achieve green university.

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