การนำเสนอทางเลือกนโยบายการศึกษาในการเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษา เพื่อส่งเสริมความยั่งยืนของประเทศกัมพูชา

นายสุเชียต มอม

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาครุศาสตรดุษฎีบัณฑิต
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ปีการศึกษา 2558
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

PROPOSED EDUCATIONAL POLICY ALTERNATIVES FOR CAPACITY BUILDING OF HIGHER EDUCATION INSTITUTIONS TO PROMOTE SUSTAINABILITY IN CAMBODIA

Mr. Socheath Mam

A Dissertation Submitted in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy Program in Development Education
Department of Educational Policy Management and Leadership
Faculty of Education
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Thesis Title	PROPOSED EDUCATIONAL POLICY ALTERNATIVES FOR CAPACITY BUILDING OF HIGHER EDUCATION INSTITUTIONS TO PROMOTE SUSTAINABILITY IN CAMBODIA
By	Mr. Socheath Mam
Field of Study	Development Education
Thesis Advisor	Assistant ProfessorChuenchanok Kovin, Ph.D.
Thesis Co-Advisor	Assistant ProfessorChirapol Sinthunawa, Ph.D.

Accepted by the Faculty of Education, Chulalongkorn University in Partial Fulfillment of the Requirements for the Doctoral Degree

.....Dean of the Faculty of Education
(Associate Professor Bancha Chalapirom, Ph.D.)

THESIS COMMITTEE

.....Chairman
(Associate Professor Charoonsri Madiloggovit, Ph.D.)
.....Thesis Advisor
(Assistant ProfessorChuenchanok Kovin, Ph.D.)
.....Thesis Co-Advisor
(Assistant ProfessorChirapol Sinthunawa, Ph.D.)
.....Examiner
(Ubonwan Hongwityakorn, Ph.D.)
.....Examiner
(Doungkamol Bangchuad, Ph.D.)
.....External Examiner
(Prinya Tumsatan, Ph.D.)

สุเชียต มอม : การนำเสนอทางเลือกนโยบายการศึกษาในการเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษาเพื่อส่งเสริมความยั่งยืนของประเทศกัมพูชา (PROPOSED EDUCATIONAL POLICY ALTERNATIVES FOR CAPACITY BUILDING OF HIGHER EDUCATION INSTITUTIONS TO PROMOTE SUSTAINABILITY IN CAMBODIA) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ. ดร.ชื่นชนก โควินท์, อ.ที่ปรึกษาวิทยานิพนธ์ร่วม: ผศ. ดร.จิรพล สินธุนาวา, 239 หน้า.

การวิจัยนี้มีวัตถุประสงค์ 1) เพื่อวิเคราะห์การเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษาเพื่อส่งเสริมความยั่งยืนของประเทศกัมพูชา 2) เพื่อเสนอทางเลือกนโยบายการศึกษาในการเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษาเพื่อส่งเสริมความยั่งยืนของประเทศกัมพูชา โดยมีขั้นตอนในการวิจัยดังนี้ ขั้นตอนที่ 1 ผู้วิจัยวิเคราะห์การเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษาของประเทศกัมพูชา โดยการศึกษาเอกสาร การสำรวจด้วยแบบสอบถามกับผู้บริหารมหาวิทยาลัยจำนวน 83 คน อาจารย์จำนวน 176 คน และนักศึกษาจำนวน 720 คน จากสถาบันอุดมศึกษาจำนวน 24 แห่ง และสัมภาษณ์ผู้บริหารมหาวิทยาลัยจำนวน 15 คน อาจารย์จำนวน 16 คน จาก 8 สาขาวิชา และผู้ทรงคุณวุฒิจำนวน 5 ท่าน ขั้นตอนที่ 2 ผู้วิจัยยกร่างทางเลือกนโยบายการศึกษาตามรูปแบบของ incremental model of policy making โดยการปรับปรุงนโยบายที่มีอยู่แล้ว แล้วนำเสนอในการประชุมสนทนากลุ่มที่ประกอบด้วยผู้ทรงคุณวุฒิจำนวน 11 คน จากหน่วยงานของภาครัฐ ภาคเอกชน และองค์กรอิสระที่เกี่ยวข้อง แล้วนำมาปรับปรุงเพื่อเสนอทางเลือกนโยบายการศึกษาตามบริบทของประเทศกัมพูชา

ข้อค้นพบมีประเด็นสำคัญดังนี้ การเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษาเพื่อส่งเสริมความยั่งยืนในประเทศกัมพูชายังอยู่ในระดับต่ำ สถาบันอุดมศึกษายังขาดผู้บริหารของมหาวิทยาลัยและคณาจารย์ที่มีคุณวุฒิระดับดุษฎีบัณฑิต อีกทั้งความรู้และทักษะในการขับเคลื่อนแนวคิด “sustainable self” ในสถาบันอุดมศึกษาและชุมชน โดยที่สถาบันอุดมศึกษาของรัฐนั้นได้รับการสนับสนุน และมีกิจกรรมที่เกี่ยวข้องกับการพัฒนาอย่างยั่งยืนมากกว่าสถาบันอุดมศึกษาของเอกชน สถาบันอุดมศึกษาบางแห่งมีความร่วมมือกับหน่วยงานรัฐทั้งในและต่างประเทศ ตลอดจนองค์กรอิสระในด้านการวิจัย และการพัฒนาชุมชนท้องถิ่น และจัดโครงการการเรียนรู้ผ่านการให้บริการแก่ชุมชนเพื่อเพิ่มโอกาสให้นักศึกษาได้มีส่วนร่วมในกิจกรรมชุมชนด้วย

ส่วนทางเลือกนโยบายการศึกษาในการเสริมสร้างขีดความสามารถของสถาบันอุดมศึกษาเพื่อส่งเสริมความยั่งยืนในประเทศกัมพูชานั้น มีทั้งหมด 11 ประการ ได้แก่ 1) ส่งเสริมการตระหนักรู้ในเป้าหมายของการพัฒนาที่ยั่งยืน 2) ส่งเสริมการตระหนักรู้ในแนวคิดเชิงปฏิบัติของการพัฒนาที่ยั่งยืน 3) สร้างความแข็งแกร่งในขีดความสามารถและแรงจูงใจของอาจารย์ในการทำวิจัยด้านการพัฒนาที่ยั่งยืน 4) กำกับให้มโนทัศน์การพัฒนาที่ยั่งยืนบูรณาการเข้ากับหลักสูตรและกิจกรรมนอกหลักสูตรในทุกสาขาวิชา 5) พัฒนาขีดความสามารถของอาจารย์ให้จัดการเรียนการสอนที่นำไปสู่การพัฒนาที่ยั่งยืนโดยเริ่มจากตนเอง 6) สร้างเสริมความร่วมมือระหว่างสถาบัน อุดมศึกษาในการแบ่งปันความรู้และพัฒนางานวิจัยที่เกี่ยวกับการพัฒนาที่ยั่งยืน 7) สร้างเสริมความร่วมมือกับสถาบันต่างๆ ของรัฐ และองค์กรที่ไม่ใช่ของรัฐที่เกี่ยวข้องเพื่อเพิ่มการวิจัยด้านการพัฒนาที่ยั่งยืน การสร้างเสริมขีดความสามารถของนักศึกษาและความตระหนักรู้ของสาธารณชน 8) สร้างเสริมความร่วมมือกับภาคเอกชนเพื่อการส่งเสริมการศึกษาวิจัย การพัฒนาขีดความสามารถของนักศึกษา และตัวแบบการพัฒนาของภาคธุรกิจ 9) ส่งเสริมการเรียนรู้ของนักศึกษาผ่านการให้บริการชุมชนในกิจกรรมการมีส่วนร่วมต่างๆ โดยสมัครใจ 10) เติมเต็มแหล่งวิทยทรัพยากรและสาธารณูปโภคด้านต่างๆ ที่เอื้อให้อาจารย์และเจ้าหน้าที่ของมหาวิทยาลัยได้เพิ่มพูนความรู้ด้านการพัฒนาที่ยั่งยืน และ 11) เติมเต็มแหล่งทรัพยากรทางการเงินเพื่อกิจกรรมการเสริมสร้างขีดความสามารถในการส่งเสริมการพัฒนาที่ยั่งยืน

ภาควิชา นโยบาย การจัดการและความเป็นผู้นำทางการศึกษา ลายมือชื่อนิสิต .....

สาขาวิชา พัฒนศึกษา ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

ปีการศึกษา 2558 ลายมือชื่อ อ.ที่ปรึกษาร่วม .....

5584207327 : MAJOR DEVELOPMENT EDUCATION
KEYWORDS: SUSTAINABILITY / CAPACITY BUILDING / HIGHER EDUCATION INSTITUTIONS / EDUCATIONAL POLICY ALTERNATIVES / CAMBODIA

SOCHEATH MAM: PROPOSED EDUCATIONAL POLICY ALTERNATIVES FOR CAPACITY BUILDING OF HIGHER EDUCATION INSTITUTIONS TO PROMOTE SUSTAINABILITY IN CAMBODIA. ADVISOR: ASST. PROF.CHUENCHANOK KOVIN, Ph.D., CO-ADVISOR: ASST. PROF.CHIRAPOL SINTHUNAWA, Ph.D., 239 pp.

This research aims (1) to analyze the capacity building of higher education institutions to promote sustainability in Cambodia; and (2) to propose educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia, as follows. First, the researcher analyzed the capacity building by employing the document study; the survey with 83 university leaders, 176 faculty members, and 720 students from 24 higher education institutions; and the interviews with 15 university leaders, 16 faculty members from eight disciplines, and five key experts. Second, the researcher drafted the educational policy alternatives based on the incremental model of policy making by adjusting the existing policies with the research findings, and organizing the focus group discussion meeting of 11 experts from the relevant public sector, private sector, and non-governmental organizations to improve the educational policy alternatives in accordance with Cambodian context.

The research findings were presented as the following. The capacity of Cambodian higher education institutions for promoting sustainability appeared to be at a low level. They lacked university leaders and faculty members with a doctoral degree and sufficient sustainability knowledge and skills to mobilize the “sustainable self” concept in higher education and local communities. Public higher education institutions had more opportunities for obtaining external support and more activities than the private ones. Some higher education institutions revealed their cooperation with governmental institutions, international governments and organizations, and non-governmental organizations on research development and community development. Only a few higher education institutions had operated the community service learning program to increase opportunities for the student engagement in community outreach activities.

The educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia covered totally 11 alternatives: (1) Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD) among relevant stakeholders; (2) Promote awareness of and participation in practical concepts of sustainability and ESD in Cambodian context among higher education institutions; (3) Strengthen capacity and boost motivation of faculty members to enhance sustainability research; (4) Ensure that curriculum and extra-curricular activities in all higher education institutions’ academic programs are integrated with sustainability concepts; (5) Develop faculty members’ capacity to enhance the sustainable self-based instruction for all academic programs at higher education institutions; (6) Enhance the cooperation among higher education institutions on sustainability knowledge sharing and research development; (7) Enhance the cooperation with governmental institutions, international governments and organizations, and relevant non-governmental organizations on the increase of sustainability research, student capacity building for sustainability, and public awareness of sustainability; (8) Enhance the cooperation with private sector on the promotion of sustainability research, the student capacity improvement, and the development of sustainable business models; (9) Promote community service learning and student engagement in the voluntary activities; (10) Enrich academic resources and physical infrastructure for university people to increase their sustainability knowledge; and (11) Enrich academic financial resources for utilizing in capacity building activities to promote sustainability.

Department:	Educational Policy Management and Leadership	Student's Signature	.....
		Advisor's Signature	.....
Field of Study:	Development Education	Co-Advisor's Signature	.....
Academic Year:	2015		

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LIST OF ABBRIVIATION

ACC	Accreditation Committee of Cambodia
ADB	Asian Development Bank
CDC	Council for the Development of Cambodia
CSL	Community Service Learning
DoHE	Department of Higher Education (Cambodia)
ESD	Education for Sustainable Development
EfS	Education for Sustainability
FM	Faculty Member
GDP	Gross Domestic Product
HDI	Human Development Index
HEIs	Higher Educational Institutions
HESI	Higher Education Sustainability Initiative
ILO	International Labour Organizations
MAFF	Ministry of Agriculture, Forestry, and Fisheries (Cambodia)
MDGs	Millennium Development Goals
MoA	Memorandum of Agreement
MoE	Ministry of Environment (Cambodia)
MoEF	Ministry of Economy and Finance (Cambodia)
MoEYS	Ministry of Education, Youth and Sport (Cambodia)
MoU	Memorandum of Understanding
MoLVT	Ministry of Labour and Vocational Training (Cambodia)
NEP	NGOs Education Partnership
NGOs	Non-Governmental Organizations
NSDS	National Sustainable Development Strategy for Cambodia
PhD	Doctor of Philosophy/Doctoral Degree
RCE	Regional Center of Expertise
RGC	Royal Government of Cambodia
SD	Sustainable Development
SDGs	Sustainable Development Goals
UL	University Leader

UN	United Nations
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNSD	United Nations Sustainable Development
UNU	United Nations University

CHAPTER 1
INTRODUCTION

1. Research Background

During the Khmer Rouge 1975-1979, Cambodia was controlled by Pol Pot. The existing academic institutions were closed and people lived without schooling. About 1.42 percent of 21,000 secondary school teachers (Ayres, 1999), and approximately 25 percent of university faculty members (Pit & Ford, 2004) were survived in 1979. The education system in Cambodia has been restored gradually after the collapse of the Pol Pot regime. Growing from the year zero, the education system at all levels faced challenges of having sufficient human, academic, and financial resources to improve quality education.

Since 1993, Cambodia has begun its democracy and the Royal Government of Cambodia (RGC) in all the five legislative terms has developed the national policies for growing the country towards the sustainable development. The theme on environment and development was mainly centered in the 1993 Constitution of the Kingdom of Cambodia, the core Constitution after the country reached the 1991 Peace Agreement Accord and turned into the democracy. The 1993 Constitution accentuates the various aspects of environmental protection, economic growth with equal access and equity of benefits, educational access and quality standards, health care and security, cultural preservation, and freedom of social and political activities (Constitutional Assembly of Cambodia, 1993). This statement indicates a primary attempt to ensure a sustainable living for Cambodian people for years to come.

The Royal Government of Cambodia moved from the "Triangular Strategy" (1997-2003) focusing on political stability, economic integration, and poverty reduction to the "Rectangular Strategy for Growth, Employment, Equity, and Efficiency" (2004-2018). Promotion of people's livelihood and preservation of natural resource for sustainable development are targeted in all the three phases of the Royal Government of Cambodia (RGC)'s Rectangular Strategy (RGC, 2004, 2008, 2013). In 2009, National Sustainable Development Strategy for Cambodia was launched to

outline directions and to encourage relevant stakeholders to involve in promoting people's well-being and quality of environment towards a sustainable lifestyle (RGC, UNDP, & ADB, 2009).

For a decade, in contrast to the progress on sustainability, Cambodia still faces issues of forestry restoration, quality of land use and water, poverty reduction, health care, education for life and job skills, and income improvement for her people. The threats of natural resources included forestry destruction (Jonhsen & Munford, 2012; MAFF, 2010) and inappropriate land use and poor quality of clean water (RGC, UNEP, & ADB, 2009). Poverty gaps resulted from income inequality sharing between rural and urban people because of their low skills of production (MoE, 2012). Low scale of Human Development Index, increasing between 0.44 and 0.54 from 2000 to 2009, regarding health, education, and income (UNDP, 2013), alerted stakeholders to take actions for the development of capacity and skills to engage people in job opportunities.

Education has been recognized as an effective mean to transfer sustainability knowledge and experiences among organizations or to people. An educational approach to the Education for Sustainable Development (ESD) relates to the "Sustainable Self," comprising of "awareness, motivation, empowerment, knowledge, skillful means, and practices" (Murray, 2011). The sustainable self is an approach to the learning for improving learners' capacity to a sustainable lifestyle. Learner begins with the awareness of sustainability concepts. Then, learners could use motivation and empowerment approaches to change their beliefs and attitudes. They continue to gain a deep understanding of sustainable development principles and to acquire skillful means with the key competence in sustainability. Finally, they become ready to take a personal action to behave in responsible and sustainable manner towards the surrounding environment. When HEIs have more faculty members who have the expertise in the sustainable self, they have more resource persons to orient the sustainable self to students.

Higher Education Institutions (HEIs) are one of the potential stakeholders for raising people's awareness of sustainability issues. Over the three decades after the year zero, there is still a question on quality of higher education (Chealy, 2009)

although Cambodian keeps its economic growth rate in an average of seven percent. The improvement of higher education quality could influence the learning quality at other educational levels. Graduates from higher education would work as teachers at schools and as resource persons in both public and private sectors. HEIs help prepare and shape human resources for the needs and future of a country (Gough & Scott, 2007; Mauch, 2000). HEIs need to promote their educational services to produce qualified graduates who make positive impacts to society.

Traditionally, HEIs have worked in the formal education system and focused on school-aged people or students only (see Figure 1.1). Although this group of people could have strong impacts on a society, they are just a few, and that might take too much time to raise awareness of and participation in promoting sustainability. Only teaching sustainability to students on campus is insufficient for HEIs. HEIs can approach other stakeholders to promote sustainability in higher education and local communities by bringing academic knowledge to grounded practices in communities, including students, youths, working people, community leader, and the public. They need to find approaches to promote sustainability concepts in local communities.

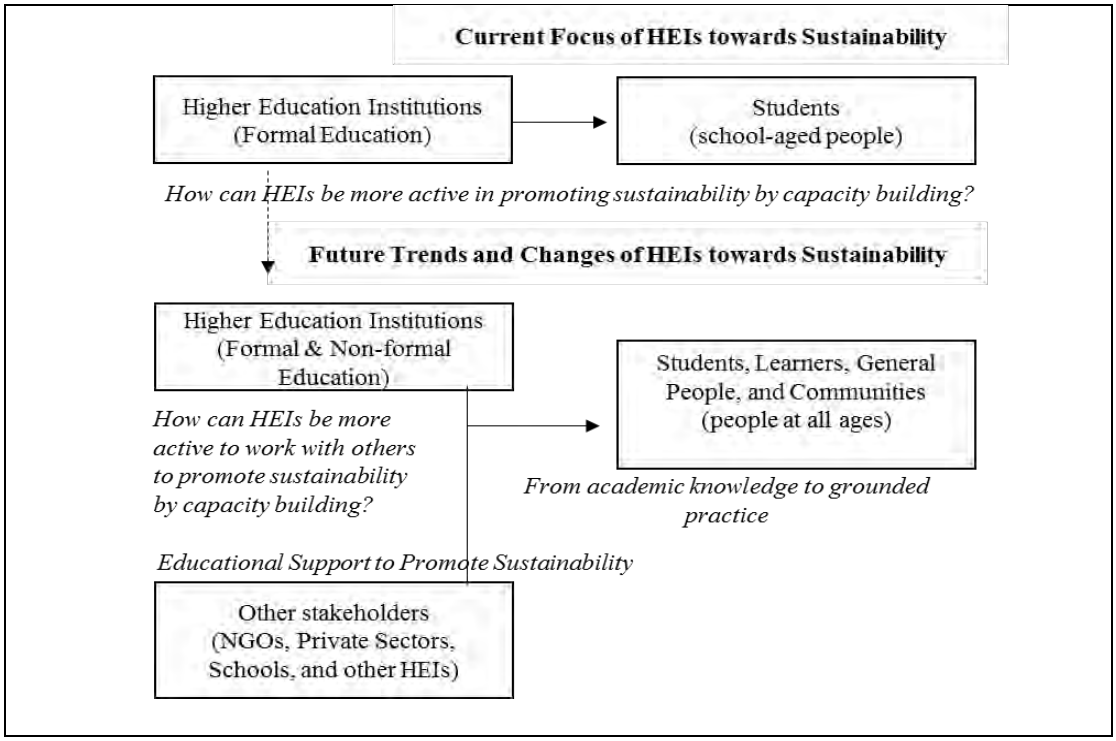

Figure 1.1 Focus and Changes of HEIs to Promote Sustainability
Source: Author's Analysis

HEIs can play a role a sustainability-oriented practitioner and leader is essential for HEIs. After the two decades of United Nations Conference on Sustainable Development (UNSD) at Rio de Janeiro in 1992, the 2012 UNSD (Rio + 20) under the theme of "the Future We Want" has strongly emphasized and reinforced the roles, actions, and responsibilities of Higher Education for Sustainability. This Higher Education Sustainability Initiative (HESI) relates to the involvement of HEIs in teaching sustainable development concepts, enhancing research, developing a partnership with local and international stakeholders and working with surrounding communities to share knowledge and experiences regarding sustainability concepts (UNSD, 2012).

Many studies have confirmed higher education plays crucial roles in the promotion of sustainability. They have suggested sustainability concepts be integrated into curriculum and instruction, introduced in campus activities, research, and community development activities (Holmberg, Lotz-Sistka, Samuelsson, Wals, & Wright, 2008; Jain, Aggarwal, Sharma, & Sharma, 2013; Müller-Christ et al., 2014; Wals, 2014). Promoting these activities in higher education needs the collaboration of various disciplines at a university, not just integration of sustainability concepts into the curriculum (Parayil, 2010). HEIs need to use a holistic approach to promoting interdisciplinary and cooperation among university people from different disciplines.

Higher education institutions can begin with environmental practices to form new knowledge of problem-solving on environmental issues to promote sustainability (as shown in Figure 1.2). HEIs promote debates on educational issues and sustainability-related issues to find possible solutions. The more HEIs have taken action on sustainability-related issues, the more new knowledge and experiences they gain. Then, HEIs engage students in developing practice-based knowledge through an educational effectiveness. The educational effectiveness is to transform students to become sustainability-oriented graduates who can share their knowledge and experience with local communities. In addition to promoting people's awareness, HEIs need to find ways to get people motivated and involved in responding to sustainability-related issues.

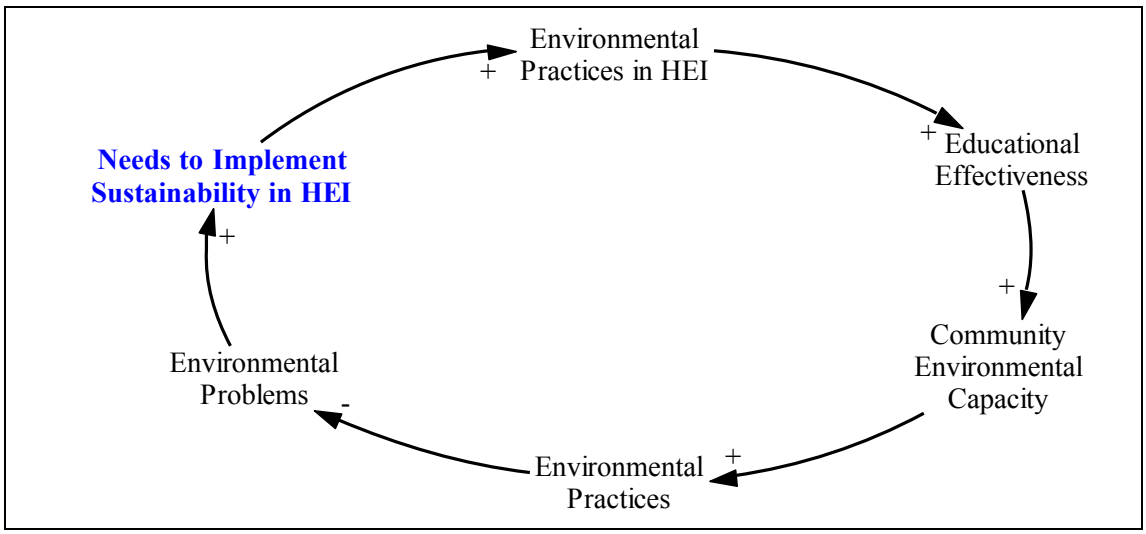

Figure 1.2 Urgent Needs of HEIs in Learning to Promote Sustainability
Source: Author's Analysis

In general, sustainability concepts seem very new to Cambodian HEIs. Few HEIs have offered courses and conducted research projects in relation to the sustainability-related topics. Specifically, since 2001, the Royal University of Phnom Penh has begun to offer the Bachelor's Program on Environmental Science. Other public and private HEIs in Cambodia focused their academic programs on business disciplines. The little attention of HEIs to ESD may relate to the limited capacity of HEIs.

To accomplish the work of HEIs' initiatives for sustainability, primarily, HEIs should be built and sharpened with sustainability capacities and competences (Heslop, 2010; Jayatilaka, 2003; Mochizuki & Fadeeva, 2010) and have a proper direction that can guide what to be in action for sustainability (Johnston, 2007) at baseline level. Obviously, it is the matter of fact that Cambodian HEIs have a challenge in identifying what and how they can play in promoting sustainability practices in higher education and local communities.

Cambodian HEIs need to get started with sustainability initiative, at the beginning stage, and to have a master direction that can support higher education institutions to have a better capacity for addressing sustainability-related issues. Thus, it becomes a question of how HEIs can learn to build their capacity to promote sustainability in Cambodia, and how to develop educational policy alternatives for the capacity building.

2. Research Questions

Based on the research problem, it is very necessary for the researcher to manage the research study to address questions relevant educational policy alternatives for capacity building of Cambodian Higher Education Institutions to promote sustainability. These research questions are stated as follows:

1) How can sustainability capacity of higher education institutions be built to promote sustainability in Cambodia?

2) How can educational policy alternatives for the sustainability capacity building of higher education institutions to promote sustainability in Cambodia be formulated and proposed?

3. Research Objectives

To achieve the overall purpose of the research on developing educational policy alternatives for capacity building of higher education institutions to the promotion of sustainability in Cambodia, two main stages of study with key objectives are determined. The study aims:

1) To analyze the capacity building of higher education institutions to promote sustainability in Cambodia; and

2) To propose educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia.

4. Research Benefits

Primarily, this research provides possible solutions to capacity building of higher education institutions to promote sustainability in Cambodia. The educational policy alternatives have been developed for directing Cambodian higher education institutions in sustainability initiatives. The obtained educational policy alternatives provide directions for higher education institutions to move towards education for sustainable development through “the sustainable self” concept. Additionally, these educational policy alternatives can be useful tools for the Ministry of Education, Youth and Sport to support higher education institutions to take into consideration.

Academically, this research documents practical concepts and approaches dealing with the capacity building of higher education institutions to promote sustainability in Cambodia context. The result of this research would be an academic source for other researchers and scholars to take further studies relevant to sustainability in higher education towards more comprehensive and advanced outcome.

5. Operational Definition of Terms

The key terms used in this research are specifically defined and contextualized only as follows.

Sustainability/Sustainable Development is delineated as goal or aspiration to achieve sustainable future by promoting the balanced growth of economic/employment, environmental/ecological, and social-cultural/equity aspects towards long-term outcomes. Sustainability can be promote through the sustainable self.

Sustainable Self refers to an educational approach of changing individual learners' attitude and behavior to have a sustainable lifestyle. University people (including university leaders, faculty members, non-academic staff, and students) and community people are engaged in the sustainable self by promoting their awareness, motivation, empowerment, knowledge, skills, and practices.

Higher Educational Institutions refer to universities and institutes that provide tertiary education services and degrees to students in Cambodia.

Capacity Building refers to approaches to developing the capacity of higher education institutions for enriching key personnel, research, curriculum and instruction, partner development, and community involvement regarding sustainability.

Educational Policy Alternatives are defined as options of master directions for developing Cambodian higher education institutions' capacity to apply the sustainable self in higher education

CHAPTER 2
LITERATURE REVIEW

This chapter will present and discuss concepts, theories, and research studies in relation to this research entitled "Development of Educational Policy Options for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia". The core concept of the research is dealing with promotion of sustainability through capacity building approaches. Then, the key approach of capacity building is the utilization of higher education for sustainable development. This chapter will deliberate on concepts, theories, and research studies concerning with the concepts and challenges of sustainability, capacity building for sustainability, higher education and sustainability and educational policy development in both Cambodian and international context from a plenty number of sources.

1. Sustainability

The notion of sustainability can be hard to provide with a concrete definition. The term "Sustainability" and "Sustainable Development (SD)" can be exchangeable to some authors whereas others consider sustainability as the final destination or impact of sustainable development.

1.1 Concepts of Sustainability

Sustainability has a long substantial history by primarily centering the environmental issues. From the plenty of debates on both national and international platforms of governments, experts, and researchers, the concept of sustainability indicates the relationship between development activities for human needs and the consumption of natural resources. It began with topics of environmental issues in the early 1960s while the production from industries was keep raising at huge in response to the demands of the dramatically increased world population (Ellitt, 2013). This concern led to formulate concepts of sustainable development from various disciplines. Ellitt (2013) highlighted definitions of the sustainable development as follows: sustainable growth with care about environment (Turner, 1988: 12); positive mass balance for long term (Conway, 1987: 12), and "development that meets the

needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, 1987: 43). The latter definition has been recognized by the major voices. Economic activities must be bounded for people's needs under approaches of careful consumption of available resources so that these economic activities would be secured in the future.

Still, Gibson, Hassan, Holtz, Tansey, and Whitelaw (2005) emphasized that sustainable development be connected to the three Es as "economic (sustainable economic), environment (sustainable natural resource), and equity (sustainable social equity)." These aspects are quite similar to Edwards (2005)'s three Es as "ecology/environment, economic/employment, and equity/equality". These concepts are bounded under the three pillars of sustainable development: economic, environment, and social development. However, while another domain "cultural sustainability" is added, it becomes "economic, ecological, political and cultural sustainability" (Duxbury & Gillette, 2007; Hawkes, 2005; Throsby, 2008).

These views reveal that there should be an interconnection of the sustainability aspects to ensure a form of development with healthiness to the environment and people. They can equitably share benefits among citizens, and social security and cultural promotion for better living over time for the present and future. Although people may have different views of sustainability in different places, they share similar perspectives on positive changes in long-term period for the future development of their country.

Additionally, sustainable development relates to two main questions—what is to be sustained? And what is to be developed? (Leiserowitz et al, 2005 in Murray, 2011) (as shown in Table 2.1). For instance, life support systems need to be sustained through development activities to foster people's well-being. Another, Brundtland Report frames sustainable development in the concept of needs and the idea of limitation. Needs, especially basic needs are very demanded for poor people to survive their living. To serve people's needs for today and tomorrow in terms of long-term benefits, people themselves must restrict a consumption of natural resources.

Table 2.1 Sustaining and Development

Sustainable What is to be sustained?	Development What is to be developed?
❖ Life support systems ❖ Natural resources ❖ Ecosystems ❖ Cultures ❖ Human dignity	❖ People and their well-being ❖ Degraded ecosystems ❖ Economic growth in the protest regions ❖ Economic efficiency in prosperous regions ❖ Society and its governance

Source: Murray (2011: 154), adapted from Leiserowitz et al, 2005

According to Murray (2011), sustainability is the overall goal of sustainable development and the aspiration to create sustainable future for both quality of life and natural resources and sustainable development indicates how people can do in everyday activities to accomplish the goal of sustainability throughout sustainable manufacturing, communities, and cities (shown in Figure 2.1). All development activities are engaged to sustainable living, production, and communication, which is healthy for society and environment. Sustainable development is what all people need to be aware of and to apply for better changes in ways of living and working.

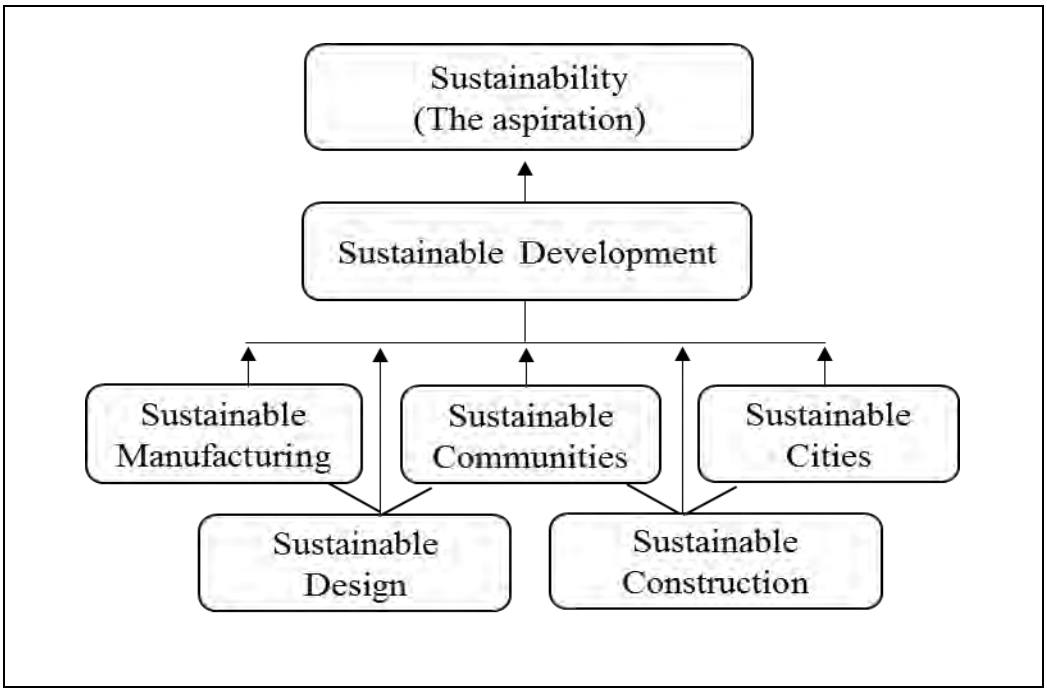

Figure 2.1 Sustainable Framework
Source: Murray (2011, p. 150)

Nevertheless, looking at micro-level aspect, Simon-Brown and Maser (2010) argue sustainable development is connected to what is happening in one's life and what can access to. Also, Murray (2011) contents personal approach of individuals as the sustainable self is practical to make their community, their society and the world sustainable.

Therefore, sustainable development is defined differently relying on the relationship between *society* (people) and *nature* (environment), but mostly referred to the ongoing social changes for improvement with *long-term availability* of natural resources. People's needs on natural resources to gain their life quality should take into a careful consideration to find ways to keep those resources accessible in the long term. Once they gain development benefits from natural resources, they are supposed to seek means on how they can share those benefits with others equitably.

1.2 Challenges on Sustainability

Sustainable development is the matter related to every individual and the world as well. It would not happen to exist visually if issues in a part of the world or people's problems are not solved.

> " […] … sustainable development was recognised as a global challenges: ultimately, the achievement of environment and development ends in any single location or for any group of people is connected in some way to what is happening elsewhere, for others" (Ellitt, 2013, p. 54)

Both locally and globally, the pollution and climate change, disaster, poverty, threats of diseases, insecurity, and inequity which result from human activities appear to be a significant obstacle to hamper sustainable development. Till present, many governments, civil society, international organizations, enterprises, and other stakeholders have been working to fight against these issues, yet both achievement and challenge are noticed.

Wastes, with a high level of carbon dioxide, from industrial factories, businesses, machinery, and home are not well-managed and cause air and water pollution. Additionally, groundwater in some rural areas in Cambodia consists of arsenic, fluoride, nitrate and manganese which can affect the people's health and environmental issues (Jonhsen & Munford, 2012). Moreover, it is found that some 40

% of rural people and 82 % of urban ones can find good quality of water (ADB, 2012a).

Moreover, climate change which results in global warming comes from over-exploitation of natural resources like forest, mining, soil, and biodiversity and people's irresponsible activities. The effect climate change does not only cause a high temperature, season change, and natural disaster, but also gives impact on human's well-being, biodiversities, economic growth, and social development (MoE, MoEF, & UNDP, 2011). The change in temperature may effect on health, agricultural production, and food supply so that it can become another barrier to reduce poverty.

In opposite to significant economic growth, poverty reduction in Cambodia may not be guaranteed at all. Between 1992 and 2011, Cambodia maintains average economic growth rate of 7.70 percent from US$ 216 to US$ 909 of GDP (MoE, 2012) and income per capital of 250 in 1998 and US$ 795 in 2008 (ADB, 2012b) estimated up to US$ 945 in 2012 and US$ 1,024 in 2013 (World Bank, 2013). At the same time, the population living on less than US$ 1.25 a day was 18.60 percent in 2009 while that living below the national poverty line was 30.10 percent in 2007 (ADB, 2013) and it declines from 47 percent in 1994 (MoE et al., 2011).

Another major issue relates the inequality of access to the resources (Ellitt, 2013; Simon-Brown & Maser, 2010). Also, Cambodia is facing matters of inequity and equality between rural people and urban ones as well as the poor and the rich, with a big gap of income inequality. Between 1994 and 2004, poverty headcount fell from 11 percent to 5 percent in Phnom Penh capital city, 25 percent to 22 percent in other urban areas, and from 40 percent to 35 percent in rural areas (CSES 2007 & WB 2009b in MoE et al., 2011).

The benefits of the economic growth have not fairly distributed among people in urban and rural areas because Cambodian people are very different from education level and human development as well. The low level of human development can prevent people from participation and opportunities to economic benefit sharing as well as the promotion of economic growth. In fact, shortage of domestic production for tourism market is a result of low production skill and education of rural people (MoE, 2012). Between 2000 and 2012, Cambodia HDI is increased from 0.444 to

0.543, with the growth of 9.9 percent; HDI-Health with 9.3 percent from 0.594 to 0.687; HDI-Education with 8.4 percent from 0.436 to 0.52; and HDI-Income with 10.9 percent from 0.34 to 0.449 (UNDP, 2013). These figures indicate the slow progress and low scale of HDI.

Realizing these issues, Cambodia turns to consider on natural resources consumption, climate change, and disaster prevention (MoE et al., 2011); human capital, sustainable agricultural production, environmental protection (ADB, 2012b; MoE, 2012); and environmental and natural systems, services, resource rights (Jonhsen & Munford, 2012) in order to lead the country to be guided by more sustainability.

In short, the challenge lies in two most important aspects; first, promotion of people's self-evident response to natural resources and second, common-good communication among people to form a peaceful environment. People may be required to be responsible for their consumption of natural resources and other everyday activities towards environment while ways of living together and sharing benefits from the natural resources are worthwhile as well.

There are still many questions on how development activities can be managed and at the same time on how to use natural resources wisely to promote environment quality. Importantly, then, it may relate to key stakeholders and their roles in applying appropriate resolution of nearby issues in their communities or society to speed up an achievement of sustainable development.

1.3 Taking Actions for Sustainability

In broad scope, sustainable development is a global agenda, but it is well-connected to everyone from various parts of the world. Governments, international agencies, non-governmental organization, and private sectors from national to local level has been working to make the world sustainable (Ellitt, 2013; Happaerts, Bruyninckx, & Van de Brande, 2012) and sustainable future (UNSD, 2012).

They all from both developing and developed countries come together to seek approaches and agreement of promoting sustainable development in their country and region. In addition, the developed provide with technical and aid support to the

developing under two main criteria including non-commercial purpose and interest and repayment (Ellitt, 2013, p. 138). The grant and loan condition offered to governments can be in the form of development projects on sustainability-related issues.

Specifically, the Royal Government of Cambodia in cooperation with United Nations Development Program and the World Bank formulates the National Sustainable Development Strategies (NSDS), which is related closely to the Rectangular Strategy, Natural Strategic Development Plan (NSDP), and Cambodia's MDGs to guarantee "*environmental sustainability, human well-being and social development, development of a prosperous economy" (RGC et al., 2009, p. vii)*. Yet, translating these principles into practices remains challenging. The Royal Government of Cambodia is calling for involvement from other key stakeholders to raise public awareness of environmental issues and sustainability-related issues and to help work out all the related issues.

Non-governmental organizations (NGOs) as a component of civil society organizations are development partners with governmental agencies and support people in local communities through various development projects and research studies on environmental protection, cultural preservation, poverty, and other social issues. NGOs are seen influential organizations which have qualities for responding to sustainable development, such as "their size, their tradition of working closely with local people and their environment, and their flexibility" (Ellitt, 2013, p. 184).

Private sectors are encouraged to mobilize under the concept of greener business into the 21st by rethinking their trade with the concern for environmental issues and environmental accountability (Ellitt, 2013). The involvement of the private sectors in social responsibility and sustainable business could provide strong impact to society.

Although each stakeholder has different roles in fighting against sustainability-related issues at a different level, their cooperation regarding multi-stakeholder participation would be very significant and would be more effective in working for sustainability. Actions of the economic growth leading to the safety of the environment and social development must get involved with all mentioned bodies to

cooperate through educational activities to promote people's awareness and practice of sustainability. Before these stakeholders can actively play role in mission for sustainability, they may need to have the capacity to function and participate in sustainable development.

2. Capacity Building and Sustainability

Individuals and stakeholders need to be ready to participate in promoting sustainability or working out sustainability-related issues. Individuals may be empowered to be a sustainability-oriented person by a particular institution or stakeholder. Stakeholders may prepare themselves as sustainability-oriented institutional leaders by working together, learning from each other, and sharing new knowledge and experience with each other.

2.1 Capacity Building and Better Changes

The term capacity itself comes out in forms of technical knowledge, core value and skills of a person, with potential for doing tasks successfully. In an organization, the connection between staff and management or leadership tasks of an organization has been emphasized to make changes. Both Loubser (1994) and (Morgan, 1998) have explained the capacity is a key aspect of changes of persons/staff and organization's functions.

According to Loubser (1994, p. 23), the elements of capacity include *specific objectives* (vision, values, policies, strategies, and interests), *efforts* (will, energy, concentration, work ethic and efficiency), *capabilities* (intelligence, skills, knowledge and mental sets), *resources* (human, natural, technological, cultural, and financial), and *work organization* (planning, designing, sequencing and mobilising). This is likely to consider capacity as systematic changes by linking persons to institutions for cooperative functions and performance to produce new outcomes.

> "Capacity is defined as the *organizational and technical abilities, relationships and values* that enable countries, organizations, groups and individuals at any level of society to carry out functions and achieve their development objectives over time" (Morgan, 1998, p. 2).

Usually, *capacity building* and *capacity development* can be interchangeably used. UNDP (1997) has defined capacity development as "the *process* by which individuals, groups, organizations, institutions, and countries develop their abilities, individually and collectively, *to perform functions, solve problems and achieve objectives.*" Likewise, Morgan (1998, p. 2) maintains that "capacity development refers to the *approaches, strategies and methodologies* which are used by national participants and/or outside interveners to help organizations and/or systems to improve their performance." It indicates how to build participants' ability to work better for an organization and necessary knowledge and skills need upgrading.

For the most part, capacity building covers capacities of making changes and approaches to developing those capacities. Based on the above illustration of the term capacity building, it is mainly related to the development of human resources for better performance in the organization through structural management.

In particular, look at a case of reforms for capacity building in Africa, capacity building is comprised of (1) skill upgrading, (2) procedural improvements, and (3) organizational strengthening (Berg, 1993, p. 63). The staff is offered general education, on-the-job training and professional development of skills. Context changes or system changes need clear indication and procedure, and then identification of institutional development process toward transformation is followed. This concept implies the capacity building is managed in the systematic approach of development framework from staff to management levels.

Similarly, capacity development consists of three dimensions; institutional development (strategies and frameworks), organizational development (human resources), and network and partnerships (ADB, 2013a). This mechanism emphasizes changes within an organization by readjusting direction, enhancing human skills, strengthening the relationship with external key partners. New approaches and working disciplines in all parts and at all levels of the organization may be reframed or reformed to ensure a more positive working and organizational culture and better outcomes.

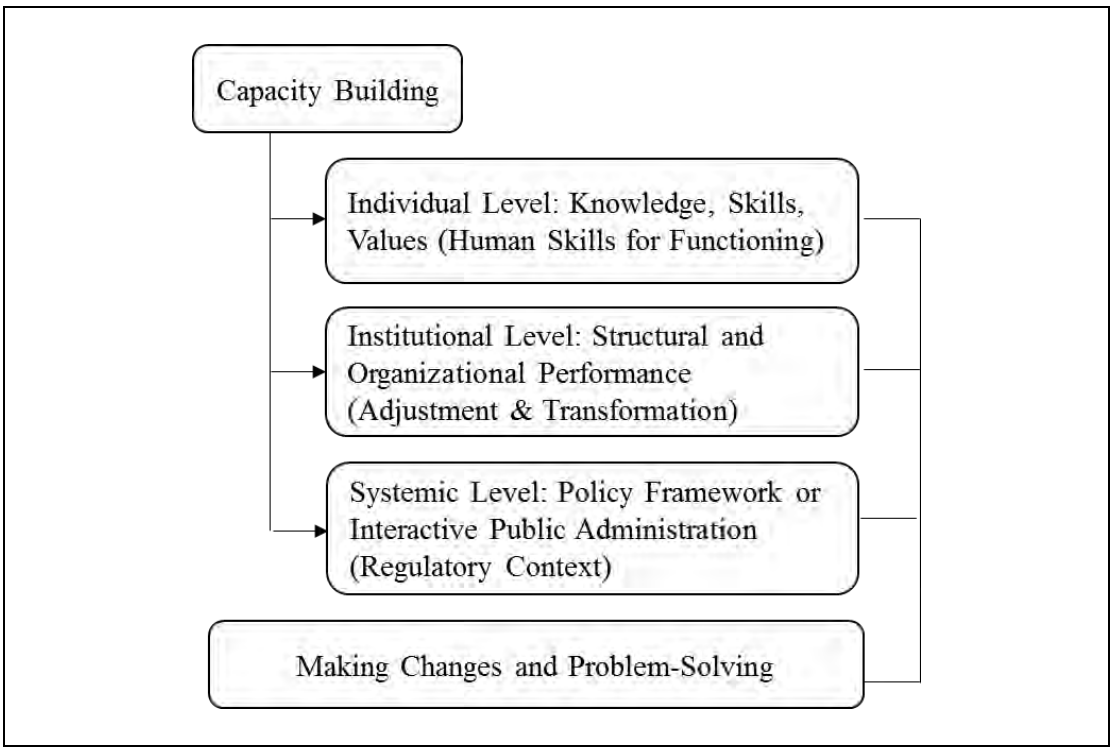

Figure 2.2 Capacity Building Levels
Source: Derived from Jayatilaka (2003)

Incidentally, capacity building consists of three different levels; namely, "*individual, organizational/institutional, and systemic/societal capacity*" (Jayatilaka, 2003) as shown in Figure 2.2. The individual capacity building is an approach to developing *individual participants* over their existing knowledge and skills to make change for improvement through learning. Readjustment or rebuilding of an institution with *organizational performance* and *functioning capabilities* is known as organizational or institutional capacity, but not necessarily create a new one, in term of supporting better policies and programs, management structure, and so forth. Extended to broader scope, systematic or network level emphasizes formulation of *policy framework* or *interactive public administration* for changing rules or regulatory context over time.

To sum things up, the capacity building makes a stronger *connection* between persons and their organization in a single direction through readjustment and changes to produce better outcomes for the organization. This transformation connects to the development of human resources and organizational management and resources. The human capacity building is about building, constructing, developing, and sharpening

of people's knowledge, competence, and skills in an organization or society for a particular purpose, reaching human potential to tackle issues or to make changes. *Organizational transformation* needs the readjustment of its vision, direction, leadership, working culture, and partnership. The capacity building can bring about changes when both human resource and organizational development are linked up together under a clear direction of the organization.

2.2 Capacity Building for Sustainability

As stated in Chapter 37 of Agenda 21 (UNSD, 1992), the capacity of people and involved institutions is demanded to ensure their readiness to promote sustainability in a country. This capacity can enable them to know what and how they can actively participate in social activities and make right decisions on addressing sustainability-related issues. An active participation can be possible once everyone or stakeholder understand what they expected to do, with belief for future changes which could affect their life (Murray, 2011).

Who should get involved in promoting sustainability? This question can be answered with the matter of fact that sustainability is connected to every individual, institution, and stakeholder locally and globally, so everyone must be aware of and active. Everyone is part of sustainability and must be equipped with *sustainability capacity*. The key stakeholder for promoting sustainability may include:

> "[… the policy makers, bureaucracy, judiciary and law enforcement agencies, women, children and young people, indigenous people, nongovernment organizations, local authorities, workers and trade unions, business and industries, scientists and technologists, farmers, financial institutions, media, educational and training institutions, religious organizations" (Jayatilaka, 2003, p. 88).

At *macro societal level*, it is supposed to build *public awareness* and educate people for *behavioral changes* with values and beliefs on how issues influence their life in the future and it requires policies and programs to put into action for the public. At *individual and organization levels*, individuals and organizations need to build abilities in terms of *knowledge and skills* to improve their performance on complex tasks of sustainability issues.

2.2.1 Individual Capacity Building for Sustainability

Primarily, sustainability initiative can get started by everyone as a personal action and practice (Murray, 2011; Simon-Brown & Maser, 2010). They believe the powerful initiative of every individual to concern on the quality of living and environment surrounding. As Simon-Brown & Maser regard sustainability as life quality, it is likely to give more focus, and everyone can actively initiate and help to spread out to others. Simon-Brown and Maser (2010) maintain that people's everyday activities have the impacts on sustainability; that is to say "healthy families, communities, and ecosystems." Similarly, Murray (2011) believes in a behavioral change of individuals through a personal approach to the sustainable self. The individuals' decision and activities could affect the whole world.

More importantly, individuals need to be educated with necessary sustainability-related knowledge, know-how, competences, skills, and values (as shown in Table 2.2. Those qualities could help people to be aware of and understand concepts of sustainability, and to transform themselves to become a sustainability-oriented practitioner. Being able to identify what the sustainability is, they may have some ideas on how they can integrate the sustainability concept into their everyday life.

Table 2.2 Summary of Individual Capacity Building for Sustainability

Individual Capacity Building	UNSD (1992)	Berg (1993)	Loubser (1994)	Morgan (1998)	Jayatilaka (2003)	Qi, et al. (2008)	Murray (2011)
Knowledge	✓	✓	✓	✓	✓	✓	✓
Know-how	✓						
Competences			✓	✓			✓
Skills	✓	✓	✓	✓	✓	✓	✓
Values			✓	✓	✓	✓	✓

Source: UNSD (1992); Berg (1993); Loubser (1994); Morgan (1998); Jayatilaka (2003); Qi et al (2008); Marray (2011)

2.2.1 Institutional Capacity Building for Sustainability

Development of an institution related to institutional change and design under reorientation or readjustment with new purpose, integration, and framework and empowerment of the people working within the organization to be able to function with the new culture and transformation. Heslop (2010) has highlighted institutional changes in complexity and holistic approaches and proposed the "institutional design principles of multi-agency sustainable development initiative." This mechanism does not require the complete change, but the adjustment to transform the existing institutional structure to fit the new purpose and direction.

> "Seven principles of institutional design include: (1) Clearly define the *purpose* of the new 'institutional arena'; (2) Understand the *existing* institutional landscape and determine the *shifts* that need to occur for institutional change; (3) Define how much *coordination* is being sought; (4) Make use of *existing institutional structures*; (5) Identify the mechanisms to steer *integration*; (6) Build *collective institutional capacity* to support institutional change; and (7) Determine *evaluation methods* and measures of success" (Heslop, 2010, p. 202).

At institutional level, promoting sustainability requires the *effective administration and governance* of key stakeholders (Ellitt, 2013; Happaerts et al., 2012; Jayatilaka, 2003; UNSD, 1992), management and leadership (Axelsson, Sonesson, & Wickenberg, 2008; Ellitt, 2013; Jayatilaka, 2003; Nomura & Abe, 2010), network and partnership establishment with local and international institutions (Ellitt, 2013; Qi, Nesser, Wigley, & Guopei, 2008), and human resource (ADB, 2013a; Jayatilaka, 2003; Loubser, 1994). Thus, besides making a change of structural management, institutional change is intended to rearrange the functions of people on how they work and how they are organized in a new policy or new regulation.

Developing institutional capacity relates to making change or reorientation of a whole institution from top management to staff management and with the expectation of a better outcome. The important components to be considered in the institutional capacity building for sustainability are summarized in Table 2.3. Based on existing framework and resources, a goal and purpose, direction and activities, structural organization and management, and working culture can be reformed in

response to the new discipline of transformation toward sustainability education. Additionally, human resources or staff in terms of the individual capacity building need to be qualified with their roles and duties to perform in a new discipline, which is sustainability-oriented.

Table 2.3 Summary of Institutional Capacity Building for Sustainability

Institutional Capacity Building	Berg (1993	Loubser (1994)	Jayatilaka (2003)	Qi, & et al. (2008)	Chapman (2009)	Heslop (2010)	Ellit (2013)	ADB (2013)
Vision, Policies, & Strategies		✓				✓		
Policies & Program			✓	✓	✓			
Strategies & Framework					✓			✓
Will, Work ethic, & Efficiency		✓						
Management Structure			✓					
Administration & Governance							✓	
Human resources		✓	✓					✓
Financial resources								
Work organization	✓	✓						
Adjustment & Integration						✓		
Network & Collaborative				✓	✓		✓	✓
Evaluation						✓		

Source: Berg (1993); Loubser (1994); Jayatilaka (2003); Qi et al (2008); Chapman (2009); Heslop (2010); Ellit (2013); ADB (2013)

3. Education for Sustainable Development

Education can be a key agent for change towards sustainability. Not only is an education for sustainability introduced in formal education, but also in non-formal and informal one since it is a lifelong learning process. Education for sustainability aims to shape all individuals to be good citizenship with knowledge and skills on the quality of life and environment for long-term. Importantly, higher education is likely

to have strong impacts as it plays a crucial role to provide with significant changes for the development of a nation.

3.1 Utilizing Education as a Mean to Promote Sustainability

During the 1980s, environment education began with an awareness of environmental issues, environmental conservation, and environmental protection. A step forward in the 2000s, Education for Sustainable Development (ESD) or Education for Sustainability (EfS) is recognized to be more responsive to sustainable development issues. This education, with shaping knowledge and skills, is for everyone—citizens, leaders, and relevant stakeholders—to ensure they can address challenges happening now and tomorrow for better living or a better world.

Education is more just about teaching and learning, but relates to the development of persons for changes (Taneja, 1984), "preparation for life" (Winch, 2000, p. 25), actions or activities to help people meet their needs (Maslow-Fergunson, 2002). So, it is a systematic mechanism, with integrated knowledge, skills, and values, dealing with how to promote, sharpen, and empower people to reach the top potential of meeting their needs and any form of problem-solving in life.

To carry out this education mission, all forms of education—formal, non-formal, and informal—are required. With well-organized structure and disciplined system, formal education comes as an educational institution, which is ranked from primary to higher education, like school, college, and university. Regardless grade or degree, non-formal education supports out-of-school people with necessary knowledge, skills, and values through training, meeting, conference, and other educational activities. In contrary, informal education happens as a lifelong learning process so that people learn to develop themselves through observation, experience, communication, and so forth from mass-media and surrounding environment.

Thus, educating people to become sustainability-oriented and motivating them to behave in a more sustainable way can take place at school or university, outside campus, in a community, on media, or/and in a public platform. To start this process, relevant stakeholders need to be ready as an initiator and a leader.

"Education, including formal education, public awareness and training

> should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. […]. Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns" (UNSD, 1992 in Agenda 21-Chapter 36).

All forms of education may need to find ways of educating people to change their behavior in a more sustainable manner. Gadotti (2010) suggests a shift from the transmissive education to the transformative education through the eco-pedagogy. Teachers have to work on a teaching-learning approach in their subject that environment concepts are integrated and make sure their learners become a sustainability-oriented practitioner.

Another, the Gothenburg recommendations relate education to a quality, which introduces sustainability concepts and practices, by focusing "(1) access for all to a process of lifelong learning, (2) gender, (3) learning for change, (4) networks, arenas and partnerships, (5) professional development to strengthen ESD across all sectors, (6) ESD in curriculum, (7) sustainable development in practice, (8) research" (SWEDESD, 2008). Education needs to work on content-based sustainability, teaching approaches, new knowledge of sustainability, and other ways to transfer the new knowledge and experience to more people.

Additionally, an educational institution itself can innovate and change its structure and organization for sustainability orientation sustainability (Tilbury, Podger, & Reid, 2004) and apply cooperation of various fields or majors (Parayil, 2010; Ryan, Tilbury, Blaze Corcoran, Abe, & Nomura, 2010). Not just are contents, curriculum, or teaching considered for modification, but they supposed to linked among different subjects in a new system of educational management and leadership.

In summary, an educational institution is expected to rethink about its system or whole-institution management in line with education for sustainability, which it can engage learners and citizens with a better and more sustainable way of living. Importantly, an educational institution can work to find an approach, which it can promote sustainability concepts through all forms of education—formal, non-formal,

and informal. Its education quality relates to the development of environment-based life quality in a society with economic growth, through teaching and learning processes. This teaching and learning, which may cover environmental conservation, social justice, democracy, human right, green growth, equity, peace, inclusive development, and other themes on civic education and sustainability, is to motivate students and people to change themselves toward more positive behavior.

3.2 Education for the Sustainable Self

Approaching to sustainability education can be possibly visible through the concept of moving towards the sustainable self with the flow of six attributes: "awareness, motivation, empowerment, knowledge, skills, and practice" (Murray, 2011). The educational mechanism, which uses in each stage from awareness to practice, is to help learners transform themselves to live and work together in a sustainable-self way. The sustainable self can be brief as a personal action and leadership, which attempt to prepare own behavior and everyday activities for minimizing the negative impact on others and the environment by building care, respect, and love. It is put in a framework as shown in Figure 2.3 and illustrated as the following.

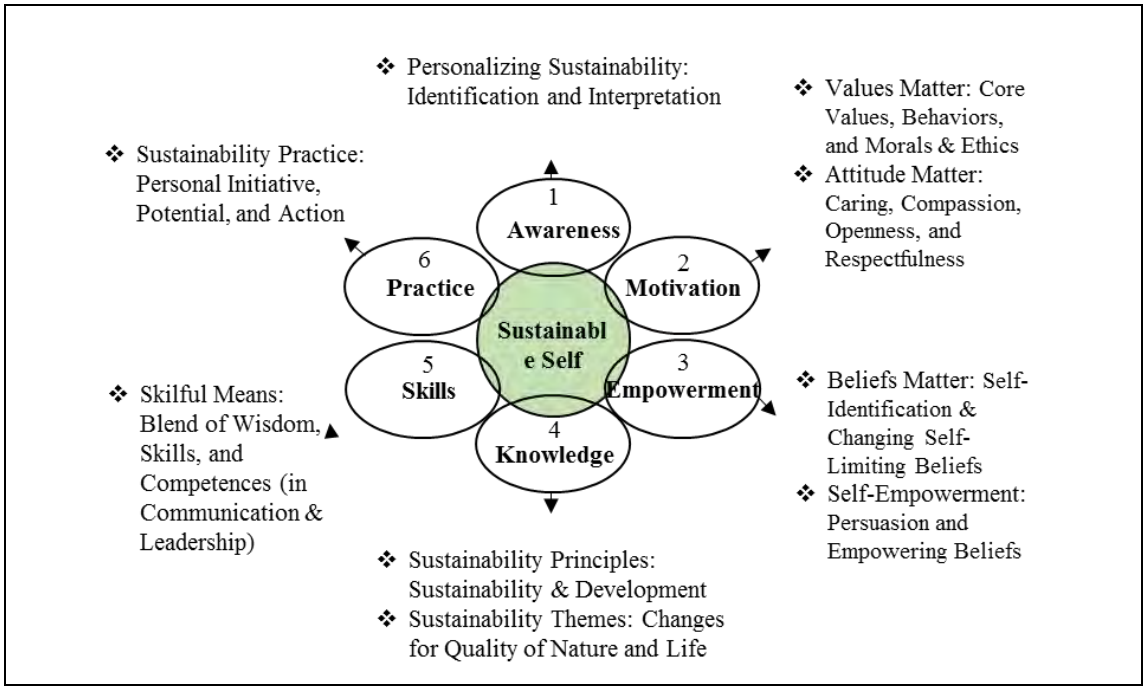

Figure 2.3 Murray's model for a personal approach to sustainability education

First, an individual needs an awareness of sustainability-related issues and his/her involvement and then develop it to the next levels from an understanding to an interpretation of sustainability concepts. Realizing that he/she is one of the important actors, he/she can formulate his/her personal definition of sustainability. Preparation to behavioral change towards sustainability relates to motivation and empowerment.

Second, an individual need clear identification and analysis of core values like happiness, fairness, and trust through self-enquiry. Then, he/she develops their attitudes—what in mind and how to act—which may include caring, compassion, openness, and respectfulness. Based on own care values, morals, and ethics, he/she is supposed to communicate with the environment and other people in a responsible manner.

Third, he/she is empowered to shape his/her belief and to develop self-empowerment. While increasing level of his/her positive beliefs in living with own core values and ethics, he/she needs to find ways to minimize self-limiting beliefs of what he/she cannot change by persuasion and reasonable thinking. This process can be possible under either own re-enforcement or assistance from outsiders.

Fourth, he/she can formulate knowledge based on recognized concepts, principles, and themes of sustainable development. Specifically, he/she may understand that everyone has to concern on natural resources and social security while creating their activities to gain income and benefits. This concept is concerned with positive changes and beyond thinking about actions and impact on nature and others in society. The main theme relates a care about the quality of life and nature.

Fifth, to link from knowledge to practice, the skillful mean—combining wisdom, sustainability skills, thinking and interpersonal competencies—are equipped an individual with multi-skills in communication, working with others, leadership, and management. He/she needs to develop thinking competencies through system thinking, future thinking, mindfulness, and enquiry so that he/she can translate their sustainability-related knowledge for practices with others surrounding.

Sixth, up to this stage, an individual makes sure he/she is ready to begin personal initiative based on self-empowerment, knowledge, and skills. With self-

encouragement and self-confidence, he/she can change his/her everyday activities in line with social responsibility and sustainable future. Another important action is to encourage and lead others to involve with such a sustainable behavior or to consider on sustainability-related issues. Ultimately, it may intend to end up in reframing ways of living life, doing business, living together, and caring about nature for a positive change and sustainable society.

Table 2.4 Ten Practices for a Sustainable Self

Awareness
1. Remembering the big picture: reason of positive change; 2. Remembering our roles: impact of our actions
Motivation
3. Remembering our values: life style and core values in our actions 4. Attending to our attitudes: adaptation of constructive and open attitudes in response to core values
Empowerment
5. Challenging unhelpful beliefs: removing self-limiting beliefs 6. Adjusting our beliefs: Re-empower ourselves
Knowledge
7. Applying our knowledge: transforming understanding of sustainability into action 8. Developing our knowledge base: Give opportunities to ourselves for gaining knowledge of sustainability
Skillful mean
9. Applying wise thinking: all activities and problem-solving with future thinking, mindfulness, enquiry and systems thinking 10. Interrelating well: wise communication and effective leadership and team work

Source: Murray (2011: 240)

Practically, in line with this model, Murray (2011) provides with some guidelines for a personal approach to sustainability based on his framework of the ten practices (as shown in Table 2.4). These practices are connected to day-to-day activities in living and at work, so individuals have to think further and beyond and to consider on results and impacts of his/her own activities. This concept is trying to place every individual in a position of self-independence, self-determination, and self-confidence to make good changes for oneself and environment as well as others in the society.

Before an individual can lead his/herself, he/she need an influenced key agent, especially those who are working with all forms of education. Among them, educational institutions, especially higher education institutions can have a strong influence on students and other people in society. A challenge relates to how higher education institutions can introduce the model of the sustainable self in their campus, to students, and other people, and leads them from awareness to action. To produce a great impact, higher education institutions may need to find means of orienting the sustainable self to school-aged people, but to all people in society.

3.3 Higher Education as a Key Driver for Promoting Sustainability

Higher Education Institutions (HEIs) has been recognized as a center of human resource production at a high level by providing graduates with knowledge that is more scientific, research-based knowledge, and approaches to creating new knowledge. They produce human resources to serve the needs and future of a country (Gough & Scott, 2007; Mauch, 2000). Higher education is very powerful to prepare people for the future and development of a country as higher education empowers individual economically, politically, culturally, and socially, so that "they become more sophisticated, read more widely, and apply their considerable skills to other areas" (Mauch, 2000, p. 29). HEIs are linked to the production of high-qualified and influential persons.

A purpose of a university is to help society meet its skills needs for the future; and it might do that both by teaching established skills to students and by carrying out research that elaborates new technological and socio-economic responses to meet the future problems and opportunities we expect to face (Gough & Scott, 2007).

Recently, sustainability in higher education has been intensively discussed in international platforms; such as United Nations Sustainable Development Rio + 20 (Higher Education Sustainability Initiative), International Conference on Sustainable Development in Higher Education, World Conference on Education for Sustainable Development 2014. A key role of Higher Education Institutions is strongly emphasized at the end of Education for Sustainable Development Decade. Evidently, HEIs are a key driver for new knowledge generating and transferring (Mochizuki &

Fadeeva, 2008) and raising people's awareness and encouraging action for sustainability (Wals, 2014).

Higher education for sustainability is extended that sustainability concepts and activities are not only to be promoted to university campuses, staff, and students, but also to be linked to community activities and services. Sustainability is suggested to integrate into curriculum and instruction, campus activities, research, community development activities (Holmberg et al., 2008; Jain et al., 2013; Müller-Christ et al., 2014; Wals, 2014). Most agree that sustainability-related topics are emphasized in teaching and learning process, research projects, and other development projects as summarized in Table 2.5. To place these actions for a practice, multi-roles of higher education institutions should be identified.

Table 2.5 Concepts on Higher Education for Sustainability

Focus of HEIs for Promoting Sustainability	Johnston (2007)	Holmberg, et al. (2008)	UNSD (2012)	Jain, et al. (2013)	Wals (2014)
Learning & Teaching	✓	✓	✓	✓	✓
Content & Curriculum		✓	✓	✓	✓
Research	✓	✓	✓	✓	✓
Green campus			✓		
Campus activities			✓	✓	
Community linkages		✓	✓		✓
Institutional Management	✓				

Additionally, Mochizuki and Fadeeva (2010) have suggested the application of competence approaches in sharpening higher education towards sustainability. In this context, curriculum, teaching and learning process, and other campus-linked community activities may include thinking competences and communication skills to help learners and people to be able to think creatively and to live together.

Besides considering in-classroom and on-campus activities, higher education institutions need to have strong network and partnership for new knowledge sharing and learning for sustainable development (Axelsson et al., 2008) and to engage in more cooperative and less competitive approaches (Gadotti, 2010). A university can

establishment its network and serve as a leader of the Regional Center of Expertise (RCE), which forms cooperation among different HEIs (Axelsson et al., 2008), cooperation among different faculties (Itoh et al., 2008), partnership of a university with local government, non-governmental organizations, business, and media (Ryan et al., 2010). Once a university builds a network of sharing sustainability-related knowledge from various stakeholders, it has better chance to work directly and indirectly in formal, non-formal, and informal education approaches to serving its community or society.

Many studies prove that cooperation between university and other stakeholders produces significant outcomes. Allen-Gil, Walker, Thomas, Shevory, and Elan (2005) bring a success story improvement of sustainability curriculum through a partnership of university and local Eco Villages. In its Environmental Studies Program, university learns to improve the courses on sustainable communities, sustainable land use, sustainable energy, and environmental future by conducting research, observation, and public lecture series and sustainability dialogue. Topics in the courses, based on community's needs and issues can help the university's program transfer new knowledge which works for the community and make use in situational context rather than content based theories.

Another, Mochizuki and Fadeeva (2010) provide a good exam of Professional Bachelor Degree Programme for Poverty Reduction and Agricultural Management (PRAM) at the Asian Institute of Technology (AIT). Under a cooperation of Laos Government's Ministry of Agriculture and Forestry, Wetlands Alliance Programme as NGO, and HEIs in the northeast region of Thailand, it connects a classroom to the northeast communities by student activities which learn from people and then offer them back new knowledge and skills for addressing their problems.

In case that a university is preparing itself to work for sustainability education, it may rethink of its study programs (curriculum and instruction), research project focuses, campus and activities, community cooperation, and external network that can be readjusted to concern on sustainability-related issues (as shown in Figure 2.4). Using its roles to promote education for the sustainable self, inside and outside campus, is believed possible. Nevertheless, broad questions may relate to how a

university can readjust its existing roles to be the sustainable self-based and who are needed to assist the readjustment.

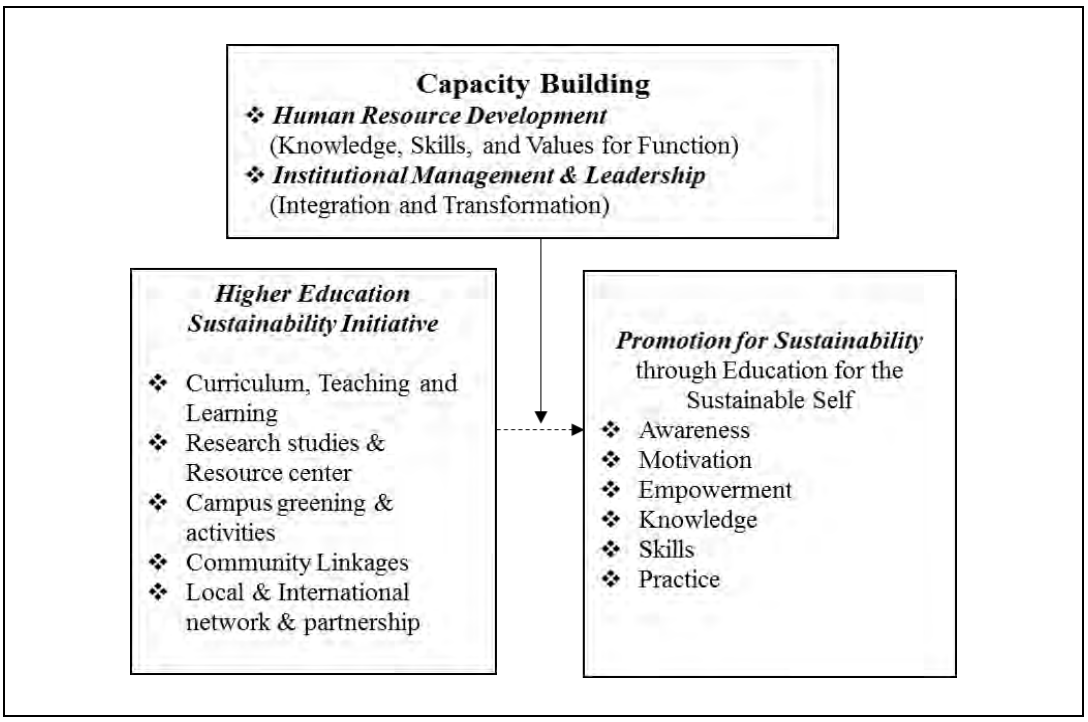

Figure 2.4 Capacity Building as Bridge for HEIs to Promotion of Sustainability from understanding to action
Source: Derived from Jayatilaka (2003); Qi & et al (2008); Heslop (2010); ADB (2013) Ukaga et al (2010); Murray (2011); UNSD (2012)

In more specific focus, the question may lie in how a university can prepare their human resource with knowledge, skills, and values to be qualified in performing their roles in line with university's new roles. Also, ways to readjust its structural management and whole-institution leadership in response to its new roles may be necessary to figure out. Building capacity of university leader, administrator, lecturers, and staff along with new roles attached to sustainability focus may be able to gap up between roles of higher education in sustainability and practice of the sustainable self.

In short, HEIs, as a/an academic and research center, are one of the key stakeholders that can make a significant change for sustainability. In other words, HEIs can create new sustainability-related knowledge and work with students and people to help them behave in a more responsible and sustainable manner. Besides producing a powerful human resource that is expected as a sustainability-oriented

leader, HEIs can extend their roles in cooperating with other stakeholders from public and private sectors and non-governmental organization as well to ensure that sustainability-related knowledge and practice can reach all the people in society. For a university to be ready for being more active in addressing sustainability-related issues and becoming a sustainability-oriented leader, it needs qualified human resources to function its roles and management and leadership system that direct its roles and human resource to desired goals.

4. Cambodian Higher Education and Sustainability

This section will present the current situation of Cambodian higher education and the capacity of Cambodian higher education institutions for human resource development, research advancement, curriculum development, partnership development, and community involvement.

4.1 Overview of Cambodian Higher Education

Table 2.6 Number of Higher Education Institutions in Cambodia by Parent Ministries

No	Parent Ministries of Higher Education Institutions	Public HEIs	Private HEIs	All HEIs
1	Ministry of Education, Youth, and Sport (MoEYS)	9	55	65
2	Ministry of Labor and Vocational Training (MoLVT	8	11	19
3	Ministry of Health (MOH)	2	0	2
4	Ministry of Culture and Fine Arts (MCFA)	1	0	1
5	Ministry of Agriculture, Forestry, and Fisheries (MAFF)	3	0	3
6	Ministry of National Defense (MDN)	5	0	5
7	Ministry of Religious Affair (MRA)	3	0	3
8	Ministry of Public Work and Transportation (MPWT)	1	0	1
9	Ministry of Mines and Energy (MME)	1	0	1
10	Ministry of Social Affairs (MSA)	1	0	1
11	Council Ministers	1	0	1
12	National Bank of Cambodia (NBC)	1	0	1
Total		39	66	104

Source: Department of Higher Education (2014)

Like other countries, Cambodia has valued the higher education and regarded it as a powerful tool for the development of the country since the Angkor Empire

(Rany, Md Zain, & Jamil, 2012). From one historical period to another, Cambodian higher education has been affected due to changes of political regime.

After the disappearance of higher education for many decades, Cambodian Higher Education Institutions, transforming to privatization, begin to grow rapidly within the two last decades. Since 1998, the number of universities, institutes, and colleges has increased from 14 (most public HEIs), to 51 in 2005, to 62 in 2007, to 97 in 2012 and 38 of which are public HEIs (You, 2012) and to 104 (most of them are private HEIs) in 2014.

Table 2.7 Number of Cambodian Higher Education Institutions under Ministry of Education, Youth, and Sport by Location

No	Province	Public HEIs	Private HEIs	All HEIs
1	Phnom Penh	5	42	47
2	Battambong	1	2	3
3	Siem Reap	0	2	6
4	Banteay Meanchey	1	0	1
5	Prey Veng	1	2	3
6	Sway Rieng	1	1	2
7	Kampot	0	1	1
8	Sihanouk Ville	0	2	2
9	Takeo	0	1	1
10	Kampong Cham	0	1	1
11	Porsat	0	1	1
Total		9	55	64

Source: Department of Higher Education (2014)

Each higher education institution has its own parent Ministry; such as Ministry of Education, Youth, and Sport, Ministry of Labor and Vocational Training, Ministry of National Defense, Ministry of Agriculture, Ministry of Religious Affairs, and other ministries (see Table 2.6). Up to 2013, 9 of 64 higher education institutions are public. All are under supervision of Department of Higher Education, Ministry of Education, Youth, and Sport. Most are located in Phnom Penh, the Capital City (as shown in Like other countries, Cambodia has valued the higher education and regarded it as a powerful tool for the development of the country since the Angkor Empire (Rany, Md

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Table 2.7). Because Cambodian HEIs were under the supervision of different parent ministries, they had a low level of the cooperation on education affair (Sen, 2013). It may be an obstacle to introducing an educational policy to all Cambodian higher education institutions. But the educational policy can be applied to the higher education institutions under the supervision of the Ministry of Education, Youth, and Sport.

The quality of Cambodian higher education in terms of international standard remains low (Chealy, 2009; Rany, Md Zain, & Jamil, 2012a; Sen, 2013). Meanwhile, (Sen, 2013) implied that Cambodian higher education institutions need to rethink about governing powers, network and external cooperation for market information, academic programs, consumption of resources, and educational policy making and implementation.

This quality may refer to the production of students with high qualification, competence, and skills that meet a requirement of the labor market at national and international levels. Besides gaining credits or build a reputation, higher education institutions can involve in promoting sustainability by working to produce students with a better quality that relates to everyday life and the environment surrounding.

Sustainability in Cambodian higher education seems new and unclear. Sustainability-related knowledge within higher education institutions themselves and society is either doubtful or widely spread. Rather, environmental education was discussed at some HEIs. Training courses and seminars related to awareness of environmental issues and protection were organized at Royal University of Phnom

Penh, in cooperation with Ministry of Environment and non-governmental organization.

4.2 Capacity of Cambodian Higher Education Institutions

The overview of the capacity of Cambodian HEIs for key personnel, research curriculum and instruction, partnership development, and community involvement is illustrated as the following,

4.2.1 Key Personnel

Key human resources at higher education institutions in Cambodia include university leaders and faculty members, who are required to have high qualification and to mobilize sustainability concepts in higher education. According to (MoEYS, 2007), university leader are required to at least have Master's Degree and experiences in higher education or/and in management, but Dean and Head of Department and Office have additional teaching experiences and works in Faculty/College and Department or Office that goes with their expertise of major or skills. In fact, Rector or Director and Vice Rector or Deputy Director have to have five-year experiences in management, whereas Dean and Head require only three-year experiences in teaching or/and management. Many university leaders in Cambodia need more knowledge and experiences related to higher education planning and management (Rany et al., 2012a; Sen & Ros, 2013).

The academic staff does not require, but are encouraged to have the highest level of education. Both full-time and part-time lecturers are recruited in line with determined criteria and qualification upon a level of their teaching course and then are offered with professional development opportunity. Faculty members must be at a degree which is higher than academic program or academic course they teach and have three-year teaching experiences; otherwise they can serve as teaching assistant (ACC, 2009; MoEYS, 2007). As many higher education institutions in Cambodia offer the highest degree as Bachelor's Degree, lecturers with Master's Degree suit the minimum requirement.

Although lecturers with Doctoral Degree are not required by the Minimum Standards for Accreditation of Higher Education Institutes, highest education level of lecturers can help higher education institutions to have more qualified human resources. Qualification of faculty members influences their teaching and their students' learning (Chen, Sok, & Sok, 2007) and faculty members' behavior in teaching affect students' academic achievement (Heng, 2014). Young Cambodian academics graduated with post-graduate degree from abroad have sufficient qualification to improve higher education quality (Ford, 2013). Higher level of faculty members' qualification can engage to more quality of their teaching and research capacity.

4.2.2 Research in Cambodian Higher Education

Faculty members in each college at higher education institutions play key role in exploring and generating new knowledge in their fields, even an interdisciplinary subject, through scientific research. Research activities of faculty members influence teaching and learning quality (ACC, 2009; MoEYS, 2014c; You, 2010a). Findings from the academic research could be a form of new knowledge in accordance with a current change, so it is helpful in the development of teaching contents.

Generating new knowledge and developing scientific research will not happen if current academic resources are deficient. Faculty members need academic and scientific references including books, research papers from journals, and other scholar publication. Higher education institutions suggest that faculty members construct new knowledge through research (You, 2010a). But high education institutions have not provided sufficient access to academic resources to faculty members (Sen & Ros, 2013). Therefore, Ministry of Education, Youth, and Sport plans to boost research resources, which higher education institutions can access to, by purchasing both national and international research articles (MoEYS, 2014b). This action suggests higher education institutions invest another budget on academic resources and provide a large access to both faculty members and students.

Shortage of scientific research at higher education institutions is a question related to faculty members' qualification, motivation, or/and access to academic

resources. Research and publication have been almost absent in Cambodian higher education institutions within the past few years. 6 per cent of faculty members have PhD and 15 per cent have published papers (Chen et al., 2007). In education congress 2014, the Ministry of Education, Youth and Sport reports that 805 of 10,842 or 7.4 percent of personnel hold PhD and plans to create higher education research fund and to increase research resources (MoEYS, 2014b). At the same, development of research skills to faculty members is needed.

4.2.3 Curriculum and Instruction

Academic programs related to environment and green growth are very few, whereas those related to economic and business whose contents are slightly linked to sustainable development concepts are at most. Bachelor's Degree in Environmental Science has been offered since 2001, Graduate Program in Development Studies since 2006 at Royal University of Phnom Penh and Bachelor's Degree in Natural Resource Management since 2002 and Agriculture since 1991 at Chea Sim University of Kamchaymear (former Maharishi Vedic University). Undergraduate and Graduate Program in Agriculture is at Royal University of Agriculture. Besides their courses related to environmental and social issues, their major research projects focus pollution, climate change, disaster, water and soil quality, forest concern, food security, poverty reduction public health.

Economic Development is at Royal University of Law and Economics and Business Administration Program is at many private higher education institutions. Most of the courses in these academic programs are about strategy and approach to improving business and economic aspects for profit-based, yet courses integrated or related to environment concern, social responsibility, green growth, energy saving, and other sustainability-related topics seem absent. Private HEIs appears to concentrated business disciplines too much. Cambodian HEIs appear to less concern with various disciplines regarding the environmental, social, and economic aspects. There may need some_changes in increase HEIs' initiative for integrating the three aspects of sustainability more into existing academic programs.

Production of trained university students with up-to-date knowledge and skills is a responsibility of faculty members and administrators at a higher education institution. Quality of academic programs and activities relies on effective performance of administrators and translating academic programs and activities into contents, knowledge, and skills for students is a function of faculty members (ACC, 2009). Qualified faculty members should be good at teaching ability and research capacity (You, 2010a). Faculty members at higher education institutions should be highly qualified in conducting research studies that enable to improve their teaching quality, to construct new knowledge, and to address development issues.

A big concern is that trained university students are lack of knowledge and skills in line with needs of market (Sen, 2013; Sen & Ros, 2013), so learning quality is questioned and limited (Chet, 2006). This quality relates to advanced knowledge and skills that can assist students to address current issues in the society or at workplace. Faculty members' function and performance influence on process to enhance this quality. So, faculty members need to be ready by strengthening their teaching and research capacity and attaching themselves to professional development in current issues.

4.2.4 Partnership Development

Besides developing a network with other higher education institutions, Cambodian higher education institutions have the main partnership with Cambodian governmental institutions, international governments, non-governmental organizations and private sector in three forms—education and technical support, funding support, and joint programs.

The collaboration international organizations helped increase capacity of HEIs. It provided technical support through a training course and grants for development projects (Sen & Ros, 2013; Vann, 2012). For instance, UNESCO offers a leadership training course to higher education institutions as well as Department of Higher Education (UNESCO, 2014). This training course was for university leaders and faculty members from both public and private HEIs and offers skills in self-management which could apply to office work and teaching.

Receiving assistance from Faun & Flora International (FFI), Royal University of Phnom Penh launched an innovative project to share knowledge and experiences to young scientists from government and non-governmental organization in biological conversation and sustainable development (Furey, 2014). Both technical and financial assistance for addressing prior issues at higher education institutions should come together.

Private sector can assist higher education institutions in terms of education feedback and financial support for joint development projects. Understanding what quality of graduates a private sector needs can bring information to higher education institutions to rethink their academic programs and curriculum. Design of academic programs and curriculum should include voices of private sector (ACC, 2009; Sen & Ros, 2013). Hence, demands of private sector can reveal what knowledge and skills should higher education institutions equip to their graduates and faculty members as well.

Higher education institutions can approach the private sector for more than just enhancing graduate quality. Resource assistance from enterprises, industries, and private companies can be the main contribution to foster education quality that meets the requirement of the labor market (MoEYS, 2014c; Sen, 2013; Sen & Ros, 2013). Besides providing feedback and practical knowledge, private sector can allocate its resources to higher education institutions for social and educational activities.

2.4.5 Community Involvement of Cambodian Higher Education

To encourage community members to collaborate with higher education institutions for addressing issues, active participation of both faculty members and students is required. This collaboration can be done in terms of education approach to on-campus community, which engages a university to student networks and outside campus community, which indicates communication with people in villages.

Faculty members and students from some higher education institutions organize short events like workshop and dialogue to increase village people's awareness about environmental protection, energy saving, small social business, agriculture, and other series related to environment and economic development. To

some colleges/faculties, students' fieldwork as a practicum for completing requirement of degree is compulsory. In fact, students at Department of Biodiversity Conversation (RUPP), Department of Community Development (RUPP) are required to conduct a research study in a village and to arrange a small educational event to the village.

In summary, faculty members and students have very significant role in generating new knowledge and contributing it to more people. They have opportunities to conduct research studies to find out new knowledge and ways of problem-solving. To lead students in this process and to produce students with high quality, faculty members need to be advanced in teaching and research capacity and function academically and professionally. Faculty members can share their opinions and knowledge to wider people through a public forum, media, and scholarly journals. To make sure that useful knowledge can reach villagers, faculty members and students can organize educational activities directly in a local community.

5. Policy and Educational Policy

Understanding concepts of public policy, in general, is a key guide to framing educational policy. Public policy process shares important stages and then educational policy development may go after.

5.1 Public Policy and Policy Process

As an instrument for governance, public policy has a close relationship with the public administration of governments and institutions at their level. Public policy has many different forms depending on its scope and focus. Policies can also come out in the form of *guidelines for discretionary action* and lead to *programs, procedures, and regulations*. A policy is defined as a choice and guideline (Downey, 1988); decision in the form of action (Haddad, 1995); the pattern of actions (Hill, 2005) and capacity to act out as values and principles (Stevenson & Bell, 2006).

> "Policies, as instruments of governance, are both: (1) the board's authoritative choices from among society's competing needs and demands; and (2) the board's guidelines for the persons who serve the educational system—including the board itself" (Downey, 1988, p. 18).

> "Policy is an explicit or implicit single decision or group of decisions which may set out directives for guiding future decisions, initiate or retard action, or guide implementation of previous decisions" (Haddad, 1995, p. 18).

> "Policy is defined as the capacity to operationalize values derived from discourses within the socio-political environment. This highlights the dual nature of policy as both product (a textual statement of values and principles) and process (the power to formulate textual statements into operational practice" (Stevenson & Bell, 2006, p. 160).

This concept reveals that policy is a single direction with collective principles for taking actions on problem-solving or a particular purpose for a future guide. These principles must be practical. Stevenson and Bell (2006, p. 18) maintains that policy is not just seen as "*statements of values or principles*, but also *actions to interpret* these statements" into practice, and it needs to make sure that participants or citizens can carry out.

In policy development or making, it is crucial to consider "who does it (the actors) and how (the process)" (Haddad, 1995, p. 19) as shown in Figure 2.5. The actors are those who get involved in all stages of the policy process and include representatives of a government, civil servants, experts, representatives of people, and relevant stakeholders. Then, the representatives of the government or a stakeholder set agenda of policy process from studying on problems, to formulating policies, and to launching approved policies to make sure that problems are solved.

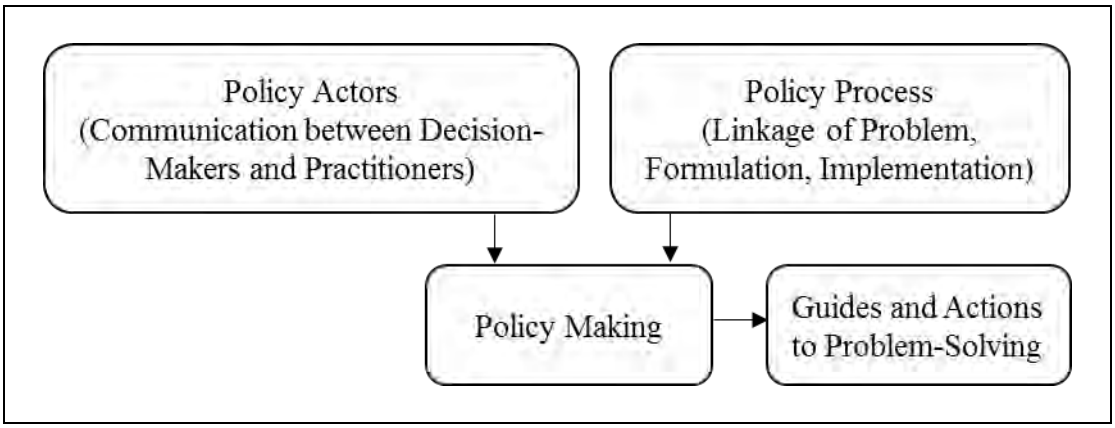

Figure 2.5 Overview of Public Policy Making
Source: Derived from Hadad (1995); Dunn (2008); Howett et al (2009)

In the democratic society, participants in policy making are categorized as *official actors* (the legislative, executive, and judicial branches stated in the Constitution) and *unofficial actors* (those who interest in policy process without any explicit legal authority) (Birkland, 2011; Smith, 2010) as shown in Figure 2.6. A governmental institution or a representative of government can function as the official actors in public policy making, can set an agenda of formulating policies by collecting concerns of people and has authority to decide preferred policies and to get those policies implemented. In this context, unofficial actors that may include representative groups of people, non-governmental organization, private sector, civil servants, political parties, and researcher can propose their ideas or concerns to the official actors for consideration.

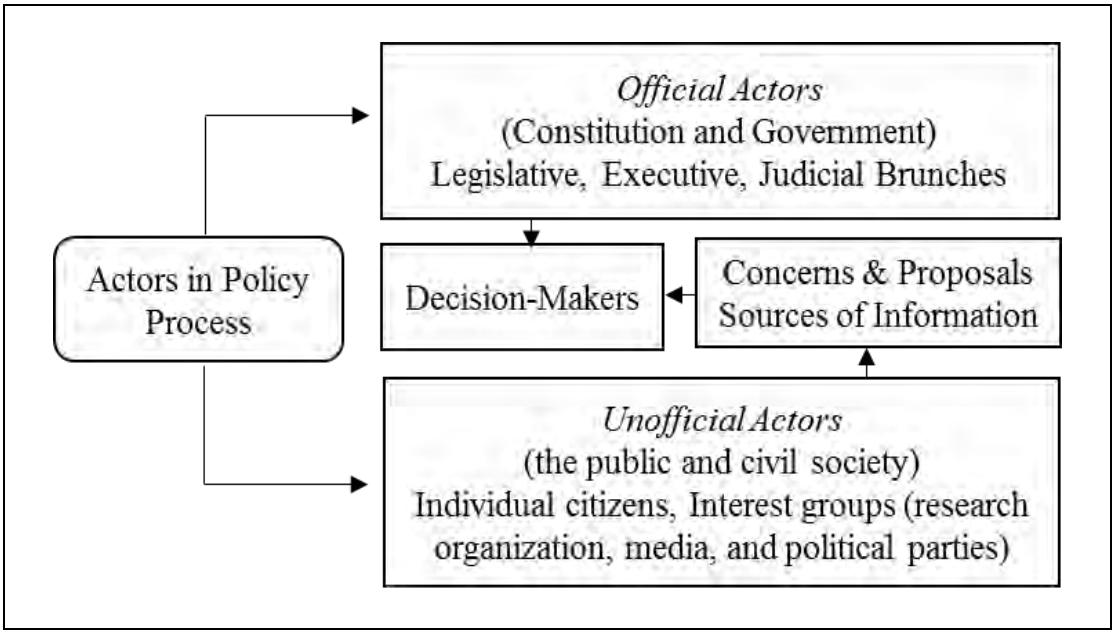

Figure 2.6 Actors in Policy Making Process in Democratic Society
Source: Adapted from Birkland (2011, p. 93)

For this reason, as unofficial actors, individual citizens and interest groups, such as political parties, research organization, and communications media can come to express their concerns to propose a policy address the real issues, especially in a democratic society (Birkland, 2011). In a democratic system of policy formulation, the voices of individual citizens and interest groups have a chance to be concerned with the policy. The cooperation between government and individual citizens and

interest groups can ensure the good public policy which serves citizens' needs and the society's needs as well.

A policy development takes a complex process and consists of several stages in a process and cycle. For almost four decades, the majority of theorists seem to agree that a policy process flow from "policy formulation to policy implementation, and to policy evaluation" (Dunn, 2008; Jones, 1970; Patton, Sawicki, & Clark, 2013). Up to the present, these stages of policy are considered the key components in any policy development although they are elaborated into several stages (as shown in Table 2.8). This elaboration provides specific steps that are easy to understand and to apply according to with a policy goal and situational context.

Policy formulation begins by an agenda-setting to identify problems and continue to formulate alternatives of problem-solving. In the agenda-setting, a policy-maker need variety of information from various sources; such as concerns of citizens and interest groups (Birkland, 2011), research findings (Kennedy, 1999), and information sources about the social-political environment and global changes (Ben-Peretz, 2011). All of this information can help a policy-maker identify real problems, challenges, and possible resolution to a table for discussion. Then, with careful consideration, policy alternatives are defined to provide various choices in response to problems. At the end of policy formulation, the best policy is selected among policy alternatives due to a decision-making of a representative group of government.

Table 2.8 Comparison of Public Policy Process

Dunn (2008)	Howlett et al (2009)	Bardach (2011)	Patton et al (2013)
Agenda setting	Agenda setting	Define a problem Assemble the evidence	Define the problem Determine evaluation criteria
Policy formulation	Policy formulation	Construct alternatives Select criteria	Identify alternative policies
Policy adaption	N/A	Project outcomes Confront trade-offs	Evaluate alternative policies
Policy succession	Decision-making	Decide	Select the preferred policy
Policy termination	N/A	Tell your story	Implement the preferred policy

Once a preferred policy is decided and authorized for implementation, the government has a major role to ensure this policy is administrated to solve the problem in the setting agenda. Relevant institutions of government work to break down this policy into several programs or activities at the practice level. This process may require administration and leadership skills of the relevant institutions to manage their programs or activities to the policy's goal. To investigate how well this policy has been worked to solve problems, an evaluation and a review of this policy are conducted. Based on the evaluation result, the policy will be kept using forward if it is found at a high level of problem-solving; otherwise, this policy is terminated.

Therefore, public policy can be proposed by citizens or interest groups to their government for working out their problems. Otherwise, government, with its initiative, can make a public policy by studying problems, listening citizens' voices and interest groups' concerns, or/and getting influenced from other factors. Before reaching the best choice of the policy for implementation, policy-makers need to take the study of policy alternatives.

5.2 Formulation of Educational Policy Alternatives

As a type of public policy, educational policy is a statement of master action or direction with collective principles to address educational issues, and this statement must be interpretable for implementation. It can be developed at either national, local, or institutional level. At the national level, official actors may include executive boards at Ministry or Department of Education whereas local level relates to academic institutions or schools.

The actors in educational policy development can be determined in respect to educational management structures and those involved in educational activities. Besides educational officials, educational administrators, and principals, some important actors who can provide with information about educational problems consist of educational researchers and scholars, teachers and students, non-governmental organizations, and private sector.

A cooperation of official actors and unofficial actors can help official actors to formulate a good educational policy that is relevant to educational problems, and that

is selected among educational policy alternatives. After gathering completed information on educational issues and concerns from unofficial actors, the policy-maker uses this information to elicit key resolution and priorities of resolution. Then, these priorities of resolution are used to formulate educational policy alternatives. Finally, the policy-maker brings these educational policy alternatives to official actors for seeking approval on an educational policy that is to be launched. Once educational issues and concerns from unofficial actors are addressed in the decided educational policy, it would be likely to solve educational problems effectively.

Educational policy alternatives can be defined as options of educational policy in a draft version at a pre-decision-making stage. These options can happen as statements of principles that provide a direction to problem-solving through an educational approach. To reach these statements of principles, it takes a policy process from problem identification, to evidence presentation, and to an alternative construction. This move is from agenda setting to policy formulation, which attempts to make a draft policy with various options as an unofficial draft only. Once one of these options is selected through a decision-making of officials, it becomes an educational policy which will be launched officially.

6. Concepts of Structural-Functionalism in an Organization

In the sociology of education, it compares education environment to a society climate, and it is believed that education is a key tool to change society. According to Emile Durkheim, education and society can appear through a relationship of school (sub-system) and society (social system) with its structure and function (Filloux, 1993). A change sub-system or a power of schools has the influence to make a change in society.

In a similar way, Talcott Parsons use *structural functionalism analysis* in the system of social action (Boskoff, 1950). Parsons regards specific parts of society as social action, which includes action or behavior of individuals or a particular institution in society. The Parsons' structural-functionalism is used in the sociological approach to the theory of organizations. “An organization is defined as a social system oriented to the attainment of a relatively specific type of goal, which contributes to a major function of a more comprehensive system, usually the

society" (Parsons, 1956, p. 63). Like social system, an organization is characterized by a systematic structure but performs specific roles in response to the society. The organization has an internal structure and external relation (Parsons, 1956).

Parsons (1956) analyzed an organization by setting a goal as an institutionalized value system and investigating mechanisms for operating the organization in the society. He used three primary contexts:

> "(1) *procurement of the necessary resources*, financing, personal services, and "organization" in the economic sense; (2) the *operative code centering on decisions* which are classified as policy decisions, allocative decisions, and coordinating decisions; and (3) the *institutional structure* which integrates the organization with others, centering on contract, authority, and the institutionalization of universalistic rules" (Parsons, 1956, p. 63).

Regarding structural-functionalism in an education institution, Parsons (1956a)'s LAGI model shows how functions of the educational institution can be identified. An educational institution is a type of a pattern-maintenance organization, which value of its society is oriented (shown in Table 2.9). For latency (L) function, the educational institution sets its goal and vision based recognized values of its society to serve people in the society. In this scene, the educational institution comes to work with people and to find ways of transferring core values of society to the people.

Table 2.9 Parsons' LIGA Model in the Analysis of Organization

Imperative Functions	Categories of Functional Problem	Organization (Relationship of Social System and Sub-system)
Latency (L)	Values (value system)	Goal Setting, Value Transfer
Adaption (A)	Resources, Options (mechanism)	External Relation and Factors
Goal (G)	Decision-Making (operative code)	Direction, Policy Making
Integration (I)	Institutional Patterns/Structure	Internalization

Source: Adopted from Parsons (1956a, p. 238).

After that, adaptation (A) function relates to the approach of communication between an educational institution and society. A structure of educational institutions can be formed to work for the set goal by considering available resources (human &

capital), network and partners, power, alternatives and decision, management approach, and social and environmental context. Next, goal (G) function elicits and determines what direction, policy, and action that the education institution itself should make a decision. Before deciding a policy for an educational institution, its manager and policy-maker can use an adaptive mechanism to study gaps between the set goal and direction for changes though the analysis of resources, potential, and opportunities.

Finally, the integrative mechanism (I) is to explore how to form institutional patterns by comparing the structure of an educational institution to that of the society. Hence, as a stage of implementation and management, it develops internal structure of the educational institutions and assigning people within to perform in social disciplines and patterns required by the society.

Based on this structural-functionalism concept, an educational institution is established to convey values of its society to its people. Thus, it develops its educational policy and action and its structural management by considering social values, external influence, surrounding environment, and resources.

7. Conceptual Framework of the Research

Sustainability in Cambodia is assumed to bring the growth of the country in economic, social, and environmental perspectives for promoting people's life quality at the long-term goal. It could happen once people have a high level of the awareness and participation. According to Murray (2011), a practical action as the "sustainable self" approach can help individual people achieve a sustainable lifestyle, which could provide positive impact to sustainable society building. The sustainable self comprises of six steps including awareness, motivation, empowerment, knowledge, skills, and practice. Throughout these step, individual people should be able to define sustainability concepts, to think critically and wisely, to behave responsibly, and to change ways of living towards sustainable development.

As a leader of Education for Sustainable Development, higher education institutions (HEIs) have a significant role in producing qualified and influenced people (Mauch, 2000; Gough & Scott, 2007), generating new knowledge on

sustainability (Mochizuki & Fadeeva, 2008), raising people's awareness and encouraging sustainability action (Wals, 2014), and making changes towards sustainability (Holmberg, Lotz-Sistka, Samuelsson, & et al., 2008; Jain, Aggarwal, & et al., 2013; Müller-Christ, Sterling, & et al, 2014). This concept indicates the main role of HEIs in promoting the sustainable self on campus and in its community. HEIs need to produce graduates who could further mobilize the sustainable self concept to local community people.

To promote the ESD, HEIs need to have the sufficient capacity for the sustainable self (see Figure 2.7). The capacity of HEIs for the sustainability initiative includes human resources, research, curriculum and instruction, partnership development, and community involvement. It is necessary for Cambodian HEIs to build their capacity. HEIs need to increase their key human resources including university leaders and faculty members with sustainability literacy. Once they have sustainability knowledge, they can promote sustainability through research and instruction.

When HEIs' curriculum in various disciplines is integrated with the sustainability concepts, their students can become sustainable self-oriented graduates, more or less. The sustainable self-oriented students can influence on local community people once they are engaged in community activities. There is where students have opportunities to learn to practice a sustainable lifestyle and to become leaders for the sustainable self. The more university people take action on practices, the more experiences they can achieve to create new knowledge of problem-solving for sustainability (Mochizuki & Fadeeva, 2008). Learning to apply possible solutions to sustainability-related issues, HEIs can gain more experiences to explore the best approach and alternative.

To foster their capacity building activities, HEIs need to cooperate with partners from public sector, private sector, and civil society organizations. Their cooperation can be for two main purposes. First, HEIs seek academic assistance from partners to improve their instruction and research activities. Second, HEIs help develop capacity of their partners to promote sustainability. This cooperation mechanism can help HEIs and their partners to increase more people's awareness and

participation towards a practice for a sustainable lifestyle. When level of public awareness increases, sustainability issues are likely to decrease accordingly. For instance, once people concern environmental issues, they would change their behavior to manage wastes, to save water and energy, and to promote nature quality under green principles.

Increasing people's involvement in solving sustainability issues can be possible once HEIs have their capacity and take action to promote ESD. It requires an educational policy for capacity building of HEIs fundamentally. Before obtaining a suitable educational policy, HEIs need to have educational policy alternatives for making a decision. Therefore, it is worthwhile for this research to formulate and propose educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia. These educational policy alternatives can be developed based on the current capacity building of higher education institutions for (1) key personnel, (2) research, (3) curriculum and instruction, (4) partnership development, and (5) community involvement regarding sustainability.

Operational Key Terms in the Research Conceptual Framework

Sustainable Self refers to an educational approach of changing individual learners' attitude and behavior to have a sustainable lifestyle. University people (including university leaders, faculty members, non-academic staff, and students) and community people are engaged in the sustainable self by promoting their awareness, motivation, empowerment, knowledge, skills, and practices.

Sustainable Lifestyle means a way people live together and behave responsibly in everyday activities without negative impacts on surrounding environment and under saving resources, responsible consumption of natural resources, and developing a togetherness culture/peaceful culture.

Capacity Building of Higher Education Institutions is defined as the capacity of higher education institutions for enriching (1) key personnel, (2)

research, (3) curriculum and instruction, (4) partner development, and (5) community involvement regarding sustainability.

(1) Key Personnel refers to university leaders and faculty members who have a potential role in mobilize sustainability concepts in higher education.

(2) Research relates to the advancement of sustainability-related research disciplines and activities to generate new knowledge.

(3) Curriculum and Instruction refers to the development of sustainability-oriented academic programs, curriculum, and teaching activities. Curriculum and instruction are used a process for producing sustainable self-oriented graduates.

(4) Partnership Development is designated as a cooperation of HEIs with partners on promotion of sustainability in higher education and in their partners' working disciplines.

(5) Community Involvement describes activities that higher education institutions participated in to increase public awareness of sustainability and to promote the practices of the sustainable self in local communities.

Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability are defined as options of master directions for developing Cambodian higher education institutions' capacity to apply the sustainable self in higher education.

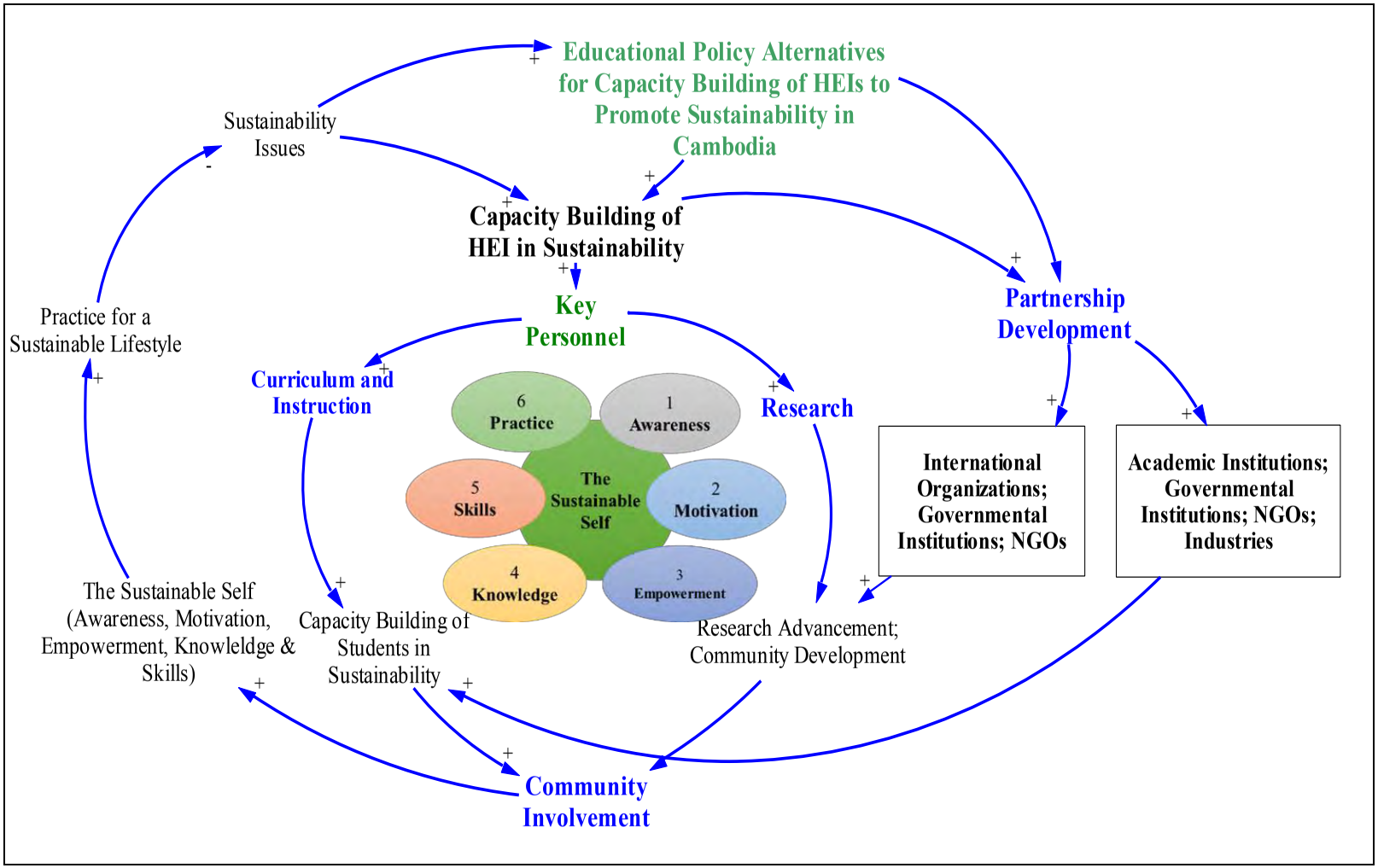

Figure 2.7 Conceptual Framework of the Research

CHAPTER 3
RESEARCH METHODOLOGY

This research study entitles "Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia," characterized by two main objectives. The first objective is to analyze the capacity building of higher education institutions to promote sustainability in Cambodia. The second one is to propose educational policy alternatives for capacity building of Cambodian higher education institutions to promote sustainability. To achieve the two objectives, the research study employed the Mixed Method Research including the document study, survey research, interviews, and focus group discussion. Further details of the research methodology were orderly illustrated as follows.

1. Objective I

To analyze capacity building of higher education institutions to promote sustainability in Cambodia, this study took three stages. These stages included (1) the document study, (2) the survey, and (3) the interview, with respect to Cambodian HEIs' capacity for enhancing key personnel, research, curriculum and instructions, partnership development, and community involvement regarding sustainability.

1.1 Document Study

The document study was to gain insights into Cambodian HEIs' capacity for promoting key personnel, research, curriculum and instructions, partnership development, and community involvement.

1.1.1 Types of Data and Documents

Although the study was not able to gather pertinent documents from each of totally 105 HEIs, it analyzed key documents from various sources in addition to the review of 93 university official websites. On the university websites, the needed data were concerning university profile, academic programs and curricula, and research

and publications. Among them, only 38 HEIs released the up-to-date news of their educational activities. Data from HEIs' handbooks, reports and newsletters which covered university information, academic programs, and research highlights between 2011 and 2014 were collected from 13 HEIs. Additionally, the relevant documents were gathered from Department of Higher Education and the Cambodia Development and Research Institute (CDRI). Significantly, the Cambodian Education Congress reports from 2013 to 2015 were studied. The valid data were used for content analysis and descriptive statistics.

1.1.2 Sources and Reliability of Data

With a controlled section of documents (Platt, 2006), documents from HEIs, the Ministry of Education, Youth, and Sport, and relevant accredited institutions and data on official websites of HEIs were considered for the study. Only valid documents respecting "authenticity, credibility, representativeness, and meaning" (Scott, 2006) from those Cambodian HEIs and the involved institutions were proceeded for the analysis.

1.1.3 Data Analysis Technique

Quantitative data and qualitative data were separated for the analysis. The study employed the descriptive statistics for the quantitative data to seek frequencies and percentages. Then Table and Figure came along to describe the data in terms of research findings. For qualitative data, content and direction analysis were deployed to describe, identify, and compare the obtained data. Based on its conceptual analysis, the content analysis follows a five-stage; (1) pre-analysis, (2) data reduction, (3) data display, (4) data finding through a complex process of synthesis, and (5) discussion of obtained information into a coherent description with tactics of reviewing, comparing, contrasting, summarizing, and concluding. Interpretation and inference of documents are based on content analysis (George, 2006; Weber, 2006). The findings from the document study were further used as a basis for the survey's instrument construction.

1.2 Survey Research

This survey research, with the emphasis on Quantitative Method which was supported by Qualitative Method, was conducted to confirm the findings from the document study and to gain further information regarding the capacity of higher education institutions for promoting sustainability.

Firstly, 14 of 88 HEIs in Phnom Penh capital city were randomly selected for a reason that they could be reached. In the provinces, at least a half number of HEIs were randomly chosen. Secondly, choosing 83 university leaders, 176 faculty members, and 720 students were based on the number of colleges at the involved HEIs.

The questionnaire was designed in rating scales and Likert scales based on the findings from the document study and the sustainability-related topics in the National Sustainable Development Strategy for Cambodia. The top five topics in environment aspect embraced *climate change, waste and pollution, recycling, energy saving, and biodiversity and natural resources*. Other top five topics in social development aspects composed *culture of peace, gender equality, human rights, poverty reduction, and social responsibility*. For economic development aspects, the top five topics comprised of *economic growth, sustainable business development, production and profits, career development, and modern technology*.

Before being handed to the university leaders, faculty members, and students, the questionnaire was reviewed by three experts from three different disciplines such as research methodology, higher education, and environment and sustainability. This expert judgment was to ensure the content validity and construct validity of the questionnaire (Fowler, 2009; Orstein, 2013). Data from the questionnaire were analyzed with descriptive statistics to seek percentages.

1.2.1 Population and Sampling

There were totally 105 higher education institutions in Cambodia. 93 HEIs had their official website and contact information. The researcher tried to contact 93 HEIs. 48 HEIs were not convenient to cooperate on this survey. Some HEIs were unable to

reach for the research cooperation as they had an operation issue. Some other HEIs had only the Associate Degree Program, which was not in the criteria of this study. Suggested by the Department of Higher Education, the survey employed the cluster sampling by the location of HEIs in the country as shown in Table 3.1.

Table 3.1 List of HEIs included in the Survey Study

No	Name of HEIs	Public	Private	Location
1	Royal University of Phnom Penh (RUPP)	✓		Central (Phnom Penh)
2	National University of Management (NUM)	✓		
3	Build Bright University (BBU)		✓	
4	Panasastra University of Cambodia (PUC)		✓	
5	University of Cambodia (UC)		✓	
6	Western University (WU)		✓	
7	Asia-Europe University (AEU)		✓	
8	University of Puthisastra (UP)		✓	
9	BELTI International University (BIU)		✓	
10	Intered Institute (IEI)		✓	
11	Preah Kossomak Polytechnic Institute (PPI)	✓		
12	National Technical Training Institute (NTTI)	✓		
13	National Polytechnic Institute of Cambodia (NPIC)	✓		
14	Royal University of Agriculture (RUA)	✓		
15	Chea Sim University of Kamchaymear (CSUK)	✓		Southern
16	Svay Rieng University (SRU)	✓		
17	University of Battambang (UBB)	✓		Northwest
18	University of Management and Economics (UME)		✓	
19	Angkor University (AU)		✓	Northern
20	University of South-East Asia (USEA)		✓	
21	Meanchey University (MCU)		✓	
22	University of Angkor Khemara (AKU)		✓	Southwest
23	Regional Decho Sen Polytechnic Institute of Kampot (RSPIK)	✓		
24	Khmer University of Technology and Management (KUTM)		✓	

First, in Phnom Penh capital city, 14 of 88 HEIs were randomly selected. In the provinces, the study randomly chose half number of HEIs in each of seven provinces. Second, from three to seven of university leaders and faculty members from various disciplines were selected depending on the number of colleges at HEIs. As a result, the survey involved 83 university leaders, 176 faculty members, and 720 third-year students in 24 HEIs from July to September 2015.

The university leaders involved in the study held the position of Rector or Vice-Rector and Dean or Vice-Dean at each HEI. Faculty members were from different academic disciplines available at the 24 HEIs to gain data from various perspectives. Only the third-year and the fourth-year students were chosen to provide responses for the survey. The study intended to gain information on student engagement in their university/institute activities within the three academic years. It could help the study obtain more comprehensive information.

1.2.2 Instrument Construction

The survey questionnaire was designed for three different sets based on research findings from the document study. First, the questionnaire for university leaders covered five main topics including (1) key personnel academic qualification, (2) research development, (3) curriculum and instruction, (4) partnership development, and (5) community involvement. It was divided into two parts. The first part, in each topic, there were statements about needs of HEIs to promote sustainability in higher education. Each item came along with five options of the Likert scale "Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree," which university leaders could indicate one of them. The second part provided spaces for university leaders to provide further information regarding challenges and needs of HEIs to promote sustainability.

Second, the questionnaire for faculty members included four parts. The first part indicated the general information regarding respondents' academic qualification and disciplines. The second part focused on the faculty engagement in activities regarding (1) capacity building of key personnel, (2) research involvement, (3), sustainability-oriented instruction, (4) community involvement in respect with 15

sustainability-related topics in the National Sustainable Development Strategy for Cambodia.

The top five topics in environment aspect embraced *climate change, waste and pollution, recycling, energy saving, and biodiversity and natural resources*. Other top five topics in social development aspects composed *culture of peace, gender equality, human rights, poverty reduction, and social responsibility*. For economic development aspects, the top five topics comprised of *economic growth, sustainable business development, production and profits, career development, and modern technology*. The Likert scale "Never, Rarely, Sometimes, Often, and Always" were stated along with each items to provide the answer choice for respondent. The third and fourth parts of the questionnaire for faculty members were the same as the first and second parts of the questionnaire for university leaders.

Third, the questionnaire for students covered two parts. The first part focused on the general information of respondents regarding their degree and disciplines. The second part included the questions regarding current situation of students in (1) training and academic meeting, activities, (2) learning activities, (3) and community involvement regarding the 15 sustainability-related topics in the National Sustainable Development Strategy for Cambodia as mentioned in the questionnaire for faculty members.

The development of the questionnaire took three stages. Firstly, the researcher designs blueprints of the questionnaire in line with research questions relating to the capacity building of HEIs to promote sustainability in Cambodia. Secondly, the blueprints of the questionnaire were deliberated into specific questions. Thirdly, both blueprints and items were reviewed by the researcher's dissertation advisor and co-advisor.

1.2.3 Instrument Quality

The three sets of the questionnaire were reviewed by three experts in the field of research methodology, higher education, and environmental sustainability to check the content validity. After the improvement of the questionniare based on the expert judgement, the researcher brought each set of questionnaire to be read by five faculty

members and students to check if the language use was appropriate to be understandable.

1.2.4 Data Collection

The researcher went to individual 24 HEIs to deliver questionnaire to faculty members and students. They did the self-administrated questionnaire after the research gave some instructions and explanations. For university leaders, the researcher used the interview to complete the questionnaire.

1.2.5 Data Analysis Technique

After the data had been collected, the data were arranged differently up on the group of respondents, such as university leaders, faculty members, and students. It took two processes. First, obtained data from the questionnaire were analyzed with descriptive statistics to seek frequency and percentage in the Frequency Distribution. Second, obtained data from open-ended questions were based with qualitative analysis and synthesis. Results of the data analysis were displayed as descriptive text, with the attachment of Tables and Figures.

1.3 Interview

The in-depth interviews with university leaders, faculty members, and key experts were conducted to gain more insight into capacity building of higher education institutions in respect with key personnel, research, curriculum and instruction, partnership development, and community involvement.

1.3.1 Key Informants

There were interviews with four vice-presidents, six deans, one vice-dean, and three directors from different HEIs for the questionnaire about needs and directions of HEIs to promote research and teaching about sustainability (as displayed in Table 3.2). Then, two faculty members were randomly selected from various disciplines in each college from different HEIs to complete a questionnaire about needs and directions of HEIs and their research and teaching relating to the sustainability topics.

Additionally, 16 faculty members from various disciplines were interviewed on their teaching activities (as shown in Table 3.2). Other five key experts from higher education, professional training and capacity building, and policy and strategy development were invited for in-depth interviews.

Table 3.2 List of Key Informants for the Interview

Code	University Leaders (appointment)	Code	Faculty Members (disciplines)
UL01	Vice-President	FM01	Agriculture
UL02	Director, Academic Program Office	FM02	Agriculture
UL03	Vice-President	FM03	Community Development
UL04	Dean, Faculty of Education	FM04	Development Studies
UL05	Dean, Faculty Social Science	FM05	Environment
UL06	Director, Quality Assurance Unit	FM06	National Resource Management
UL07	Vice-President	FM07	Education
UL08	Vice-President	FM08	Education
UL09	Director, Academic Program Office	FM09	Business
UL10	Dean, Faculty of Agriculture	FM10	Economics
UL11	Dean, Faculty of Management	FM11	Electric Engineering
UL12	Director, Research Office	FM12	Construction Engineering
UL13	Vice-Dean, Faculty of Agriculture	FM13	Information Technology
UL14	Dean, Faculty of Community Development	FM14	Science
UL15	Dean, Faculty of Tourism	FM15	Tourism
		FM16	Tourism

1.3.2 Instrument and Data Collection

Before conducting the interviews, the researcher developed the interview protocols aligning with challenge and capacity building for key personnel, research, curriculum and instruction, partnership development, and community involvement. For the data collection, the researcher interviewed university leaders and faculty

members at their university in both Phnom Penh and provinces. Interviews with key experts were conducted their university and office at the Department of Higher Education.

1.3.3 Data Analysis Technique

The conceptual analysis and triangulation analysis were deployed to analyze the data from the interviews. The data from various key informants were coded as keywords, which represent the ideas of each group of key informants. Then, the keywords with their details were compared and discussed within and across those from key informants for synthesis.

All in all, research results of analysis from the document study, the survey, and the interview provided comprehensive findings on capacity building of higher education institutions to promote sustainability in Cambodia. All the findings were further used to help the researcher identify problem and agenda setting to formulate educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia.

2. Objective II

Up to this stage, the study intended to formulate and propose educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia through the sustainable self approach.

2.1 Developing Draft of the Educational Policy Alternatives

The researcher employed the incremental model for policy making to formulate the educational policy alternatives. The researcher developed the educational policy alternatives developed based on (1) existing policies regarding higher education and sustainable development and (2) research findings of the capacity building of higher education institutios. The draft of educational policy alternatives were brought to the focus group discussion of experts.

2.2 Focus Group Discussion

The focus group discussion of experts was conducted twice with the same participants in different place. The first round of the focus group discussion was held on 26th January 2016, at Krom Ngoy Room of the Cambodia-Japan Cooperation Center, Royal University of Phnom Penh. Eight of eleven invited experts attended the discussion and the researcher had the discussion with other three experts in the following days.

Table 3.3 List of Experts Involving the Focus Group Discussion

Name	Appointment	Note
H.E. Mr. MAK Ngoy	Director-General, General Department of Higher Education, MoEYS	Interviewed
Mr. TANN Sambath	Deputy Director, Department of Institutional Management, MoLVT	Attended
Mr. SENG Rathea	Deputy Director, Department of Biodiversity, General Secretariat of National Council for Sustainable Development, MoE	Attended
Mr. IENG Sotheara	Executive Director, Entree Baitang (Green Eagle) Co, Ltd., Director, the IENG Foundations	Attended
Mr. KOEM Oeun	Director, Cambodia-Japan Cooperation Center (CJCC), (Former Deputy Director, General Department of Higher Education)	Attended
Mr. CHIN Chanveasna	Executive Director, NGO Education Partnership (NEP)	Interviewed
Dr. KHIENG Sothy	Head of Education Unit, Cambodia Development and Research Institute (CDRI)	Attended
Dr. HENG Pheakdey	Chairman, Enrich Institute (for Green Growth)	Interviewed
Dr. ROS Soveacha	Researcher and Consultant, Education and Training, Education for Sustainable Development	Attended
Mr. SOTH Nimol	Education Program Officer, Education for Sustainable Development, UNESCO Phnom Penh Office	Attended
Ms. KOL Leakhana	Deputy Program Manager, Urban Poverty Reduction Program, People In Need Cambodia	Attended

The experts came from relevant ministries, international organizations, research institute, and private sector (as shown in Table 3.3). The researcher played as

a moderator to keep the discussion agenda moving and used the voice recorder to record in the discussion. In the first agenda, the researcher briefly presented all the educational policy alternatives. The second agenda opened the discussion of each statement of the educational policy alternatives. Experts took turn to share their ideas on each statement of the educational policy alternatives. The researcher considered those comments from experts to make the improvement of the educational policy alternatives.

The second round of the focus group discussion was conducted on 2nd February 2016 at the Meeting Room of the Bellevue Serviced Apartments, under the sponsorship of the Director of the IENG Foundations, to further discuss on the educational policy alternatives. Only five of the experts participated in the second round-discussion where other three experts shared their opinions in the next day. The experts provided further comments to improve the policy educational alternatives and descriptions of the educational policy alternatives to suit the Cambodian higher education context.

In brief, this study was conducted in two main stages in line with their research objectives and research questions (as summarized in Table 3.4). First, the study employed the document study, survey, and interview orderly to gain insight into the capacity building of Cambodian higher education institutions to promote sustainability. Second, to propose educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia, the researcher formulated the educational policy alternatives and invited experts in the related fields to share their expert opinions to improve the educational policy alternatives through two rounds of the focus group discussion.

Table 3.4 Summary of the Research Methodology

Objectives	Study	Respondents/ Key Informants	Data Collection Techniques	Instruments	Expected Results
1. To analyze capacity building of higher education institutions (HEIs) to promote sustainability in Cambodia.	1.1 Capacity building of HEIs in key personnel qualification and development, research and new knowledge about sustainability-related issues, curriculum and instruction related to sustainability, partnership development for educational support, and community engagement for promoting awareness of sustainability.	N/A	Document Study	N/A	Current situation about capacity of HEIs in key personnel qualification and development, research about sustainability-related issues, curricular and instruction related to sustainability, partnership development for educational support, and community involvement to promote sustainability
	1.2 Survey on capacity of HEIs in key personnel, research, curriculum and instruction, development partnership, and community involvement to promote sustainability in Cambodia	1) 83 university leaders 2) 176 faculty members 3) 720 university students (third years) from 24 HEIs	Survey	1) Questionnaire for University Leaders 2) Questionnaire for Faculty Members 3) Questionnaire for Students	Capacity building for key personnel, research, curriculum and instruction, development partnership, and community involvement to promote sustainability in Cambodia

Table 3.4 Summary of the Research Methodology (continued)

Objectives	Study	Respondents/ Key Informants	Data Collection Techniques	Instruments	Expected Results
	1.3 Interviews on capacity of HEIs in key personnel, research, curriculum and instruction, development partnership, and community involvement to promote sustainability	1) 15 university leaders 2) 14 faculty members 3) 5 experts	Interviews	Interview Protocol	Capacity building for key personnel, research, curriculum and instruction, development partnership, and community involvement to promote sustainability in Cambodia
2. To propose educational policy alternatives for capacity building of HEIs to promote sustainability in Cambodia	2.1 Formulation of educational policy alternatives for capacity building of HEIs to promote sustainability in Cambodia based on findings from the document study, survey, and interviews (in the first objective).	N/A	N/A	N/A	Draft of educational policy alternatives for capacity building of HEIs to promote sustainability in Cambodia
	2.2 Improvement of the educational policy alternatives for capacity building of HEIs to promote sustainability in Cambodia	11 experts from various disciplines including higher education, educational research environment, ESD, and green business.	Focus Group Discussion	N/A	Educational policy alternatives for capacity building of HEIs to promote sustainability in Cambodia

CHAPTER 4
RESEARCH RESULTS

This chapter presents research findings in response to the two research questions as follows. First, how do Cambodian HEIs build capacity to promote sustainability? By employing the document study, questionnaire, and interviews, the researcher will illustrate the findings in the capacity building of HEIs in promoting key personnel, research, curriculum and instruction, partnership development, and community involvement. Second, how can educational policy alternatives be proposed for capacity building of HEIs to promote sustainability in Cambodia? As the result of benchmarking the research findings with existing educational policies, educational policy alternatives emphasize the enhancement of human, financial and academic resources for building the capacity of HEIs to promote sustainability.

1. Capacity Building of Cambodian Higher Education Institutes to Promote Sustainability

The analysis of capacity building of HEIs to promote sustainability is based on the research results from the document analysis, the survey, and the interviews. Research findings are going to be presented in three different parts as follows.

1.1 Document Analysis

The document analysis covers the primary research results regarding capacity building of HEIs for key personnel, research, curriculum and instruction, partnership development, and community involvement to promote sustainability.

1.1.1 Key Personnel

Based on the document analysis, the findings for the key personnel in Cambodian higher education are focused on the academic qualification and capacity building of the key personnel.

Academic Qualification

Based on Education Congress Reports 2012-2015, the number of university faculty members who had a Master's degree and a PhD slightly rose while that of the Bachelor's degree gently declined. Figure 4.1 indicated that the largest proportion of faculty members had the highest academic qualification at Master's degree. In 2014, there were 11,362 faculty members, and it increased by a mean of 2.53 percent annually within the last four years. In an average, the number of faculty members with Bachelor's degree dropped by 1.16 percent, that of faculty members with Master's degree increased by 4.87 percent, and that of PhD faculty members increased by 1.28 percent. The number of Master faculty members was on top at 7,117 faculty members, and that of PhD faculty members shared only 7.36 percent in 2014.

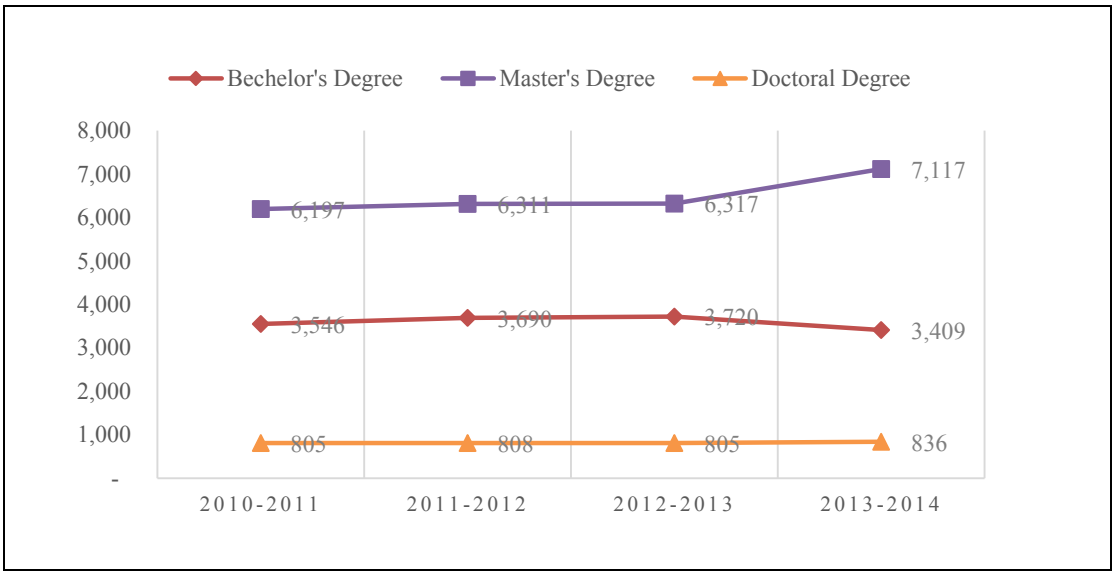

Figure 4.1 Academic Qualification of Faculty members in Cambodian Higher Education
Source: Adapted from Minisitry of Education (2013, p. 40; 2014d, p. 42; 2015, p. 32)

Figure 4.2 showed that the majority of Cambodian university students were in the undergraduate program, especially at Bachelor's degree. Between 2011 and 2014, the number of both undergraduate and graduate students increased by a mean of 3.88 percent annually from 223,221 to 249,092. In the academic year 2013-2014, 86.02 percent of them were attending the Bachelor's degree program, and it was followed

by Master degree at 7.23 percent, which was slightly higher than that of Associate degree at 6.28 percent.

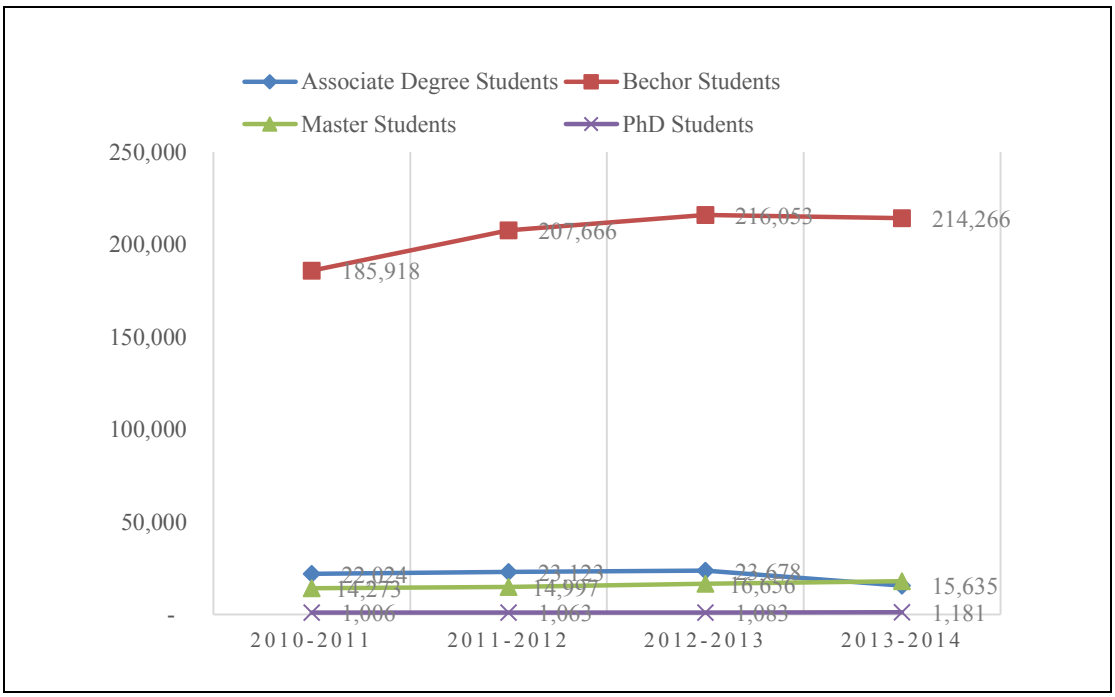

Figure 4.2 Number of Students in Cambodian Higher Education
Source: Adapted from MoEYS' Education Congress 2015, p.32-34

Based on Figure 4.1 and Figure 4.2, the student-faculty ratio was at 21:1 in the academic year 2010-2011 and it went up to 22:1 in 2013-2014 after dropping from 24:1 in 2012-2013, in overall. However, the academic year 2013-2014, the ratio for teaching in Master's degree and PhD programs is at 23:1, the ratio for Bachelor's degree program is at 30:1, and the ratio for the Associate degree program is at 4:1.

Capacity Building of Key Personnel

Higher education personnel development at the national level was focused on the provision of scholarship for furthering education, and the engagement in training and workshops. According to the MoEYS' Education Congress 2015, for the development of higher education personnel, the MoEYS had granted 21 scholarships for Master degree in Australia and 19 of all recipients graduated. The scholarship is for both personnel from the Department of Higher Education and faculty members from HEIs. Additionally, the MoEYS promote non-degree education by engaging both academic and non-academic staff in training and conferences at foreign

universities and by hosting training and workshops for building the capacity of their personnel.

Table 4.1 Themes of Training and Academic Meeting Participated by Higher Education Personnel between 2012 and 2014 at the National Level (by persons)

Themes of Training and Academic Meetings	2012	2013	2014
Research Methodologies for Scientific and Technological and Social Science Subjects	227	-	-
Workshop on Research Proposal Writing	135	-	-
Development of Curriculum to Address Market Demand	128	-	-
Training on Development of Credit Transfer System at Higher Education Level in Cambodia and Japan	82	-	-
Training on Learning and Teaching Experiences at Higher Education for Education Officials from HEIs	127	-	-
Training on Human Resource Development to Respond the Demand for Skilled Labor	70	-	-
Training on Strengthening Leadership and Management Capacity of HEI Management	95	-	-
Training on Result-based Planning and Monitoring for Higher Education	143	-	-
Training on Implementation of Regulation related to Doctoral Degree Education	-	109	-
2nd International Conference on Mathematics and the Use of Technology for Mathematics Education	-	250	-
3rd International Conference on Mathematics and the Use of Technology for Mathematics Education	-	-	250
Research Forum and Presentation on Priority Areas for Research	-	-	105
1st Education Research Forum	-	-	492
Training on Research Action Planning	-	-	105

Source: Adapted from (MoEYS, 2013, 2014d, 2015)

Stated in the MoEYS' Education Congress 2012-2015, 26 personnel were supported to attend training courses and conferences, which of most focus on research methodologies, quality assurance for higher education, and procurement and financial management in higher education. Likewise, the themes of training, workshops,

seminars, and forums hosted by the MoEYS, in collaboration with its development partners, are significantly associated with research, teaching, and management in higher education, from the most to the least frequently (as shown in Table 4.1). Participants are from Development of Higher Education and HEIs across the country.

On the other hand, at an institutional level, some HEIs provided their faculty members and staff with training courses concerning with energy consumption, climate change, environment, and community development based on their official websites. Royal University of Agriculture (RUA) organized on-campus training and workshop series on "Efficiency of Using Agricultural Equipment", "Machinery Utilization and Effective Energy System in Applications of Hydraulic Machinery", "Relationship between Mines Destroyed and the Development", and "Climate Change Issues" and sent their faculty members for abroad workshop on "Improving Skills for Writing Research Proposal on Rural Development."

The themes of on-campus training at RUA appear to be in line with Royal University of Phnom Penh (RUPP)'s. It had conducted National Conference on Social Enterprise of Cambodia annually between 2011 and 2013 for its faculty members and other researchers to debate "business and social development issues." RUPP's Faculty of Development reported that it organized training courses related to "community management," "climate change resilience," and "environmental management" to support their faculty members.

For another on-campus training, the University of Cambodia (UC), revealed that its faculty members and staff participated in the short training on "Art of Living with Yoga, Breath, Service, and Meditation." This training was claimed to help the faculty members and staff reduce the level of stress and to improve their working performance with responsibility and accountability. The Royal Academy of Cambodia—an advanced national research institute and post-graduate training institute, its five faculty members attended "Annual International Conference on the Role of Social Sciences in Sustainable Development in Laos, Cambodia, and Vietnam" in 2013.

1.1.2. Research

The capacity of HEIs for sustainability research emphasizes the research disciplines and the research support.

Research Disciplines

Based on HEIs' official website, of 38 HEIs, only eight reported they had involved in the research projects regarding the environment, agriculture, and community development. Those research projects were granted by their partners like foreign universities, international governmental agencies, international organizations, and international companies. For instance, the major research work of the Institute of Technology of Cambodia concentrated on the climate change, solid waste management, waste water treatment, food processing, and environmental issues. Likewise, the similar research areas were found in Prek Leap National School of Agriculture, National Polytechnic Institute of Cambodia, and Royal Academy of Cambodia.

National Technical Training Institute had research projects concerning farmers' income improvement for poverty reduction in rural areas. Remarkably, among higher education institutions in Cambodia, Royal University of Agriculture had five research centers such as ECOLAND Research Center, Center for Agriculture and Environmental Studies, Center for Livestock Development Studies, Food Research and Development Center, and Center for Agricultural Development Studies. This university's research areas focused largely on sustainable agriculture and environmental conservation.

Royal University of Phnom Penh (RUPP), which received an outstanding research award from the Ministry of Education, Youth, and Sport (MoEYS) in November 2015, has conducted major research related to education development, biodiversity, effective energy, climate change, food security, community development, and economic growth in rural areas. In a case of a provincial university, Meanchey University (MCU) had research projects regarding agricultural education and food security.

Research Support

Most research projects were usually supported by international agencies. For example, RUPP revealed some research projects such as "Water-Related Risks of Livelihood and Biodiversity […]" funded by the UNESCO-IHE, "Community-based Conversation […]" funded by the McArthur Foundation, "Harmonizing Nature and Human Society for Sustainable Development" funded by the World Bank, and "Forest Biodiversity and Related Ecosystem Service […]" funded by the World Wildlife Fund. The value of those projects at RUPP was not stated.

At another university, MCU's most recent research was about "the Food Security Improvement in Cambodia through Applying Science and Technology in Environment-Friendly Agriculture," funded with 176,000 US Dollars from the World Bank in addition to its shared budget of 5,000 US Dollars. This university had a joint research project with its partnered universities on "Capacity Building to Strengthen Agricultural Education and Extension Services in Cambodia, Lao, and Vietnam," funded with a total value of 180,000 US Dollars from the AusAID.

On the other hand, few HEIs appeared their partnership with the private sector for joint research projects regarding environment issues. With financial support from Hyundai Cambodia, National Polytechnic Institute of Cambodia had research project relating to "waste management and recycling". ITC collaborated with GERES over research activities related to food fermentation, water treatment, solid waste management, and air quality. Another key partner for research cooperation of ITC was the Japan International Cooperation Agency (JICA).

1.1.3. Curriculum and Instruction

The document analysis of the curriculum and instruction in Cambodian higher education found research results regarding the academic disciplines and curriculum and the coursework in academic disciplines.

Academic Disciplines and Curriculum

Based on the official website of 93 HEIs, Figure 4.3 indicated that Cambodian HEIs concentrated their academic programs strongly on the economic and

social development pillars (60.22 percent of HEIs), but they less concerned the environmental pillar (6.45 percent of HEIs). The number of HEIs opening business and economics academic programs had almost ten times greater than that of HEIs offering the environmental discipline. From 35 to 47 percent of HEIs opened the academic programs in the social science disciplines, the science, engineering and technology disciplines, and education, arts and language disciplines, respectively.

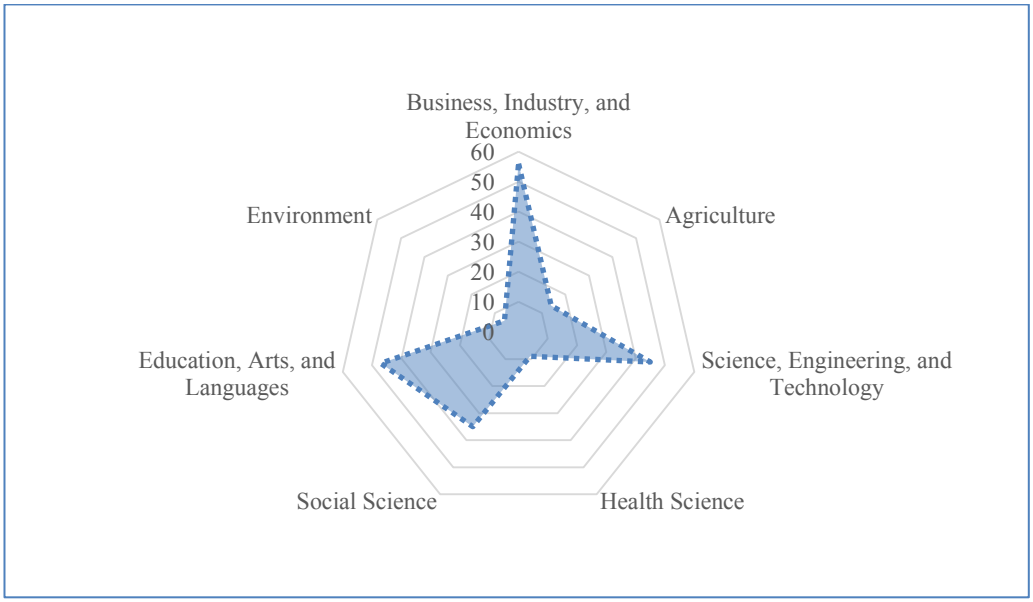

Figure 4.3 Number of HEIs by Main Disciplines
Source: Document study on the official website of 93 Cambodian HEIs

In the field of *business and economics*, the most popular majors consisted of "Accounting, Business Administration, Finance and Banking, and Marketing." In *education* field, the major in "Teaching English as a Foreign Language" was ranked the first. In *social science* area, the majors in "Law, Commercial Law, International Relations, and Public Administration" were ranked on top. The popular majors in the field of *science, engineering, and technology* comprise of "Information Technology, Computer Science, Civil Engineering, and Electrical and Energy Engineering".

Agriculture field composed "Agronomy, Veterinary Medicine, Agricultural Economic and Rural Development, Animal Science, Land Management, and Agro-Industry." The *environment* majors were "Natural Resource Management" and "Development and Pollution, Urban, and Environmental Studies" at Royal University of Phnom Penh, "Resource Conservation and Management" at Royal University of

Phnom Penh, “Natural Resource Management” at Chea Sim University of Kamchaymar, and “Environmental Management” at Paññāsāstra University of Cambodia.

Coursework in Academic Disciplines

For over a decade, all Cambodian HEIs have implemented the Foundation Year Program to strengthen the learning capacity of freshman undergraduates. At the minimum requirement determined by the Accreditation Committee of Cambodia (ACC), HEIs have to teach some standard courses for one academic year. Most common courses in the program compose “Khmer Literature, Cultural Studies, Introduction to Business, and Introduction to Environment.”

Based on the curricula of 38 HEIs, there were some interesting courses, which could partly relate to the interdisciplinary for sustainability. 26.47 percent offered courses like “Business Ethics and Leadership, Community-based Tourism, Community-based Sustainable Tourism Development, Rural Socio-Economics, Socio-Economic Development, and Social Enterprise”. Then, 7.53 percent opened courses on “Eco-Tourism, Environmental Tourism, Environmental Economics, Environment and Agriculture, and Sustainable Tourism”. Meanwhile, 55.88 percent delivered the environment-related courses such as “Introduction to Environmental Science, Environmental Pollution, and Development and Environment”. Noticeably, “Community-based Sustainable Tourism Management and Eco-Tourism” appeared in a *tourism* major; “Environment and Agriculture” were found in an Agriculture major. The courses “Introduction to Sustainable Development, and Environment and Sustainable Development” are in *environmental science* major.

From the three cases of universities that operated academic programs in environment specialization, all the three universities taught an environmental course for all students from all disciplines in the first year. Only a few of them add few compulsory courses regarding the environment and social development aspects to all disciplines. There was a considerable distinction among the three universities.

First, in case of University A, the field of *environmental science* was divided into two specialized degree programs—“Pollution and Urban Environmental Studies

(PUES) and Natural Resources Management (NRM)". Both majors shared the same courses, such as "Introduction to Environment, Ecosystem and Climate Change, Environment and Sustainable Development, Environmental Economics, Environmental Policy and Regulation, Environmental Ethics, Environmental Impact Assessment, and Gender, Environment and Development." The course "Introduction to Environment" at this university was a compulsory course for every discipline. In common, this university offers academic programs in natural science, social science and education. But since late 2014, the university had extended more few disciplines such as business and engineering.

Second, the degrees about *environmental science* at University B were the "Environmental Studies, and Environmental Policy and Planning." The two specializations had the same major courses like "Global Environment Awareness, Environmental Health and Toxicology, Science behind Global Climate Change, Pollution Control and Management, and Freshwater Ecology and Management." Remarkably, curriculum for all majors at this university included compulsory courses like "Introduction to Environment, Gender Studies, Personal Growth and Development, and Introduction to Ethics and Governance." This university offered wide range of academic disciplines such as business, economic, law, education, architecture, and social science.

Third, at University C, degree in Resource Conservation and Management included major courses such as "Gender Sensitive in Education and Employment, Natural Resource Management and Conservation, Water Supply and Sanitation, Renewable Energy, Environmental Science, Environmental Impact Assessment, Agricultural Waste Management, and Water Management". Remarkably, other fields of study at RUA have at least a 2-credit elective course related to environment. "Environment Impact Assessment" course is offered in the field of *agro-industry, agricultural economics and rural development, and fisheries*. "Protected Areas and National Park, Forest Management, and Wildlife Management" courses are taught in the field of *forestry*, and so are "Ecology and Soil Conservation" courses in the field of Agronomy, and "Animal Welfare, Environment and Climate Change" course in the field of *veterinary medicine*.

From these three cases, the universities offered an environment-related course to students in all disciplines at least in the first year academic program. Among the three universities, University B appeared its potential impacts of sharing sustainability-related knowledge to students from more disciplines.

1.1.4. Partnership Development

The higher education partnership development covers the cooperation between HEIs and other HEIs, Cambodian governmental institutions, international governments, non-governmental organizations, and private sector.

Partnership among Higher Education Institutions

A strong collaboration between public HEIs revealed, whereas a collaboration between public HEIs and private HEIs appeared to be absent. The Cambodian Higher Education Association (CHEA) had been established by a group of private HEIs since 2004 to gather voices from its members to promote a high-level discussion with the MoEYS. Till present, all members of CHEA were from private HEIs. Even so, there had no any significant activity which showed collaboration among private HEIs at an institutional level. In contrast, university leaders from public HEIs created a group to strengthen their collaboration among public HEIs on higher education development debates and joint research activities.

Most Cambodian higher education institutions appeared to seek collaboration with foreign universities on joint research projects, joint academic programs joint training programs, an exchange of researchers, faculty members and students based on the official website of 38 HEIs. Among them, RUPP, RUA, and ITC described their joint research projects with oversea universities related environmental issues. RUPP, RUA, MCU, and DIU had their individual research projects related to poverty reduction in local communities.

RUPP, UBB, PUC, PPIU, UME, and USEA cooperated with their partnered HEIs to launch conferences and seminars related to “environmental conservation.” The fourth international conference on “conservation agriculture in South-East Asia”, with the theme of “conservation agriculture and sustainable crop production

intensification", was held at the University of Battambang in 2014. University of Management and Economics organized its first international conference on "green environment and education" in 2014. Meanwhile, according to Kwok, Chan, Heng, Kim, and Neth (2010), a collaboration of University of Health Science cooperated with Korean, Japanese, and Australian universities focused on research projects related to "dental and oral health."

The DELPHE partnership, established under collaboration between Royal University of Phnom Penh, and University of Bradford, Friends International, DFID, and UK British Council, initiated a project to raise public awareness on social enterprise towards creating a sustainable community (RUPP, 2014). In addition to providing with a social enterprise module training to NGO professionals, this university organized three annual conferences. The 2011 conference focused on "developing the social economy and generating sustainable and creative solutions to poverty and social exclusion." The 2012 conference was about "how and why do we start a social enterprise?" The 2013 conference was themed on "social enterprise for youth and community integration."

Some activities which indicate collaboration among public HEIs can be observed. On its official website, ITC reported that its recent cooperation with UHS aimed at promoting the exchange of faculty members, research scholars and students, joint research activities, and exchange of educational and research materials. In a similar case, the three provincial universities—CSUK, SRU, and MCU—built the collaboration on the exchange of research materials, physical materials, faculty members, and students.

In Phnom Penh capital city, NUM, RUPP, RULE, and ITC jointly initiated a Cambodian Student Research Competition 2015 with the theme of "Clean and Green City." It was co-sponsored by ABA Bank and Vital Mineral Water. 378 undergraduate students at 20 HEIs submitted their application and research paper. The winning full research paper entitled "Creating Environmental Awareness Through Art-based Project Learning" with the value of 2,000 US dollars. The research proposal, entitled "Improving Solid Waste Management in Phnom Penh" was also awarded the winning research proposal with the value of 1,000 US dollars. It is the

first ever activity which indicates the collaboration between domestic HEIs in motivating university students to conduct research related to environmental issues.

Partnership of HEIs with the Governmental Institutions

The relationship of HEIs and various institutions of RGC revealed the activities which had aimed to improve the capacity of students and university staff based on HEIs' official website. All HEIs needed to have a close relationship with the Department of Higher Education of MoEYS in legal administration. The Ministry had provided technical assistance to all HEIs. Representatives from HEIs were invited for the capacity building program with training themes in higher education management, research development, and curriculum development. Additionally, the Ministry had provided research grant opportunities to HEIs. However, only a few prestigious HEIs received the research grant.

International University (Cambodia) cooperated with the Ministry of Environment for hosting the seminars on "Increasing Awareness of Climate Change in Cambodia" and "Biosafety Media Network in Cambodia" in 2014 to build the capacity of the faculty members, university staff, and students. Other HEIs like RUPP, NUM, RUA, UP, PUC, BBU, UC, and NU described their cooperation with Phnom Penh Municipality Hall on the participation and sponsorship in an awareness campaign on the road safety and environment. The campaigns as well as the annual "Environmental Day" and "Clean City" were organized by Phnom Penh Municipality Hall and co-sponsored by several international organizations and local non-governmental organizations.

The Phnom Penh Municipality Hall invited HEIs and relevant organizations to get involved. The participants from HEIs include university staff and students. For instance, 60 students from UC attended the "Let's Do It! Cambodia" among 2,400 participants in 2011. Other HEIs including RUPP, RUA, NUM, NU, BBU, and UP did not show the number of their students participating in the event although they were reported about their participation. As it was organized annually from 2011 to 2014, at least hundreds of university students had a chance to learn about pollutions, wastes, and other environmental issues.

Several HEIs including RUPP, RUA, CMU, SRU, CSUK, UC, BBU, NU, UP, and PUC showed their cooperation with the National Television of Cambodia, which was administrated by the Ministry of Information, on Youth Debate on Environment. This television program was co-organized by the Ministry of Environment. Groups of students from those HEIs attended the debate competition, which one group was assigned to be in the support position and another group was in the opposite position. In 2013, four students from Svay Rieng University won the first prize for the debate on "[t]he Effect of Climate Change" over students from RUPP, RUA, and CMU. In the same year, another competition involved students from University of Puthisastra (UP), Human Resources University (HRU), Asia Europe University (AEU), and Cambodian University for Specialties (CUS) on theme "[t]he Science Development Causes the Depletion of Natural Resources." These debates can improve students' critical thinking skills on environmental issues and send useful messages to people through the television program.

Partnership of HEIs with International Governments and Organizations

International Governments and NGOs appeared to be the great development partners in providing research grants and educational support to Cambodian higher education institutions. As found, prestigious Cambodian HEIs appeared to obtain research funds the most among Cambodian HEIs. On its official website, RUA had reported that in each year the university worked with its partnered international organizations on some projects and activities in the agriculture- and environment-related fields. Its collaboration happened in forms of joint conferences, technical advising assistance, researching funding, joint projects, and students' research cooperation. For example, its project on "Capacity Building of Higher Agricultural Education in Cambodia" was funded by Czech Development Agency to strengthen the capacity of teaching staff and students in research, pedagogical education, and international relations.

RUA established "the Regional Centre of Expertise (RCE) Greater Phnom Penh" to promote education for sustainable development regarding food, agriculture, and environmental education in six provinces surrounding Phnom Penh city. To run this joint project from 2013 to 2015, RUA collaborated with the Institute of

Environment Rehabilitation and Conservation (ERECON CaM), Tokyo University of Agriculture, and Ministry of Agriculture, Forestry, and Fisheries. As reported in Global RCE Network, this project provided sustainable agriculture and environmental conservation knowledge to 573 farmers and 149 elementary school students in 2013, 10 elementary schools, 26 families, and 180 university students in 2015.

Reported on its official website, RUPP, receiving assistance from Faun & Flora International (FFI), launched an innovative project to share knowledge and experiences to young scientists from government and non-governmental organization in biological conversation and sustainable development. Additionally, RUPP together with University of Bradford and Friends International developed a three-year project to raise public awareness on "social enterprise towards creating a sustainable community" through training and annual conferences between 2011 and 2013. University students, practitioners from social enterprises and NGOs, representatives from the private and public sectors, and International Development Agencies participated the conferences to debate topics on poverty, health, environmental, employment, and social enterprise issues.

Moreover, under cooperation with various international governments and organizations, RUPP had a great number of research projects related to environmental issues and community development. In 2013, RUPP conducted research projects on "Rural Livelihood Improvement through Learning and Sharing Knowledge of Model Farmers in Cambodia" and "Harmonizing Nature and Human Society for Sustainable Development" funded by the World Bank through MoEYS, and "Community-based Conversation […]" funded by the McArthur Foundation (2013). In 2014, RUPP obtained research funds from the Korean Development Institute on "K-12 Curriculum Framework and its Relevance to Economic Development in Cambodia," UNESCO Phnom Penh on "Learning about Biodiversity: Multiple-Perspective Approaches in Teaching and Learning," and the World Wildlife Fund "Forest Biodiversity and Related Ecosystem Service […]."

University of Health Science (UHS) received technical assistance and research funds health issues from its international partners such as World Health Organization (WHO), French National Agency for Research on Aids and Viral Hepatitis,

Australian Volunteers International, and Global Health through Education, Training, and Services. Also, funded by the WHO, this university organized the training on "protection and monitoring of infected diseases in local communities" for 40 health officers from various public hospitals.

However, the official website of other HEIs indicated that they partnered with international organizations to strengthen their students' capacity through training and practices. Under the cooperation with Academic Stand Against Poverty (ASAP) Cambodia and ASAP Southeast Asia, Panasastra University of Cambodia (PUC) launched a conference on building thoughtful collaborations to help overcome the regional problem of poverty, with a focus on sustainable development. The university of Puthisastra cooperated with Cambodia International Education Support Foundation (CIESF) and Asia SEED Institute on entrepreneurship education and with AIESEC for leadership training and international internship program.

Partnership of HEIs with Non-Governmental Organizations

Cambodian HEIs developed a partnership with local non-governmental organizations to build the capacity of their faculty members and students through seminars, internships, and research. The review of their official website indicated that some Cambodian HEIs collaborate with various NGOs to organize academic meetings on environment-related issues. In 2014, Norton University organized the seminar on "Strengthening Tourism Education with Focuses on Tourism Impact on the Environment, Culture, Communities, and Economies" for its students. The Prek Leap National School of Agriculture hosted a seminar on "awareness and integrated knowledge of climate change in agricultural sector" in 2013. University students from various HEIs in Phnom Penh attended the youth forum on "climate change and gender" conducted at the National Institute of Education by Youth Resource Development Program (YRDP) in 2014.

For promoting its Community Service Learning Program, PUC built a partnership with local NGOs. Its students volunteered to involve in the local NGOs' community development projects related to education, health care, and environment. Similarly, UP's collaboration with local NGOs was focused on the promotion of

students' participation in social activities such as awareness campaigns related to environmental issues, and fieldwork in local communities to promote villagers' health. Many HEIs cooperated with various local NGOs to increase research and internship opportunities for their students.

RUPP, RUA, and ITC collaborated with Cambodia Development and Research Institute (CDRI) on various research projects related to Cambodian higher education development. For over 25 years, CDRI as a leading research center in the country has involved in research and published in the fields of agriculture, economic, environment, governance, and health. RUPP collaborated with international organizations to build the capacity of local NGOs' staff on social entrepreneurship as a mechanism for sustainability through three annual conferences from 2011 to 2013.

Partnership of HEIs with Private Sector/Industries

The review of their official website indicated that majority of HEIs formed the connection with industries to organize academic events and to seek internship opportunities for their students. RUA, together with its partners from various companies, hosted "Agricultural Fair and Career Day" in 2014. This event displayed the university and enterprises' agricultural products and built a connection between those enterprises and the university students for job opportunities. Angkor University and S.V.V Success Group held a seminar on "How to Become a Professional/Good Staff" in 2013. Enrich Institute together with RUPP organized an Enrich Forum on Sustainable Development 2014 under financial support from vKirirom Resort and Virtus Green Plantations, the Asian Foundation and the Voice of America.

ITC had collaboration with many companies throughout the years. In 2014, ITC received the support of air conditioning from G Gear Co., Ltd, and both of them agreed to provide training and internship opportunities to students. The collaboration between ITC and Nidec Electronic Co., Ltd increased internship opportunities for students. In the same year, ITC discussed with delegates from Croton Company to find ways for collaboration on small and medium enterprise related to engineering and architecture.

On the other hand, few HEIs appeared their partnership with the private sector for joint research projects regarding environment issues. With financial support from Hyundai Cambodia, National Polytechnic Institute of Cambodia had research project relating to "waste management and recycling". ITC collaborated with GERES over research activities related to food fermentation, water treatment, solid waste management, and air quality.

The VisionFund Cambodia had provided education loan to university students in the University of South-East Asia since 2013. It also expanded its collaboration with many other HEIs in the country by granting students a loan through their university. In 2015, under cooperation with its partners including the Onemore Restaurant, Frangipani Villa Hotel Group, Naga World Hotel, and Cambodian Distribution System, the Norton University (NU) hosted a seminar on "Job Opportunities and Internship Program." Additionally, NU signed MoU with the Onemore Restaurant and Frangipani Villa Hotel Group to promote practices of the students in hospitality and tourism disciplines.

On their official website, many HEIs listed their partners from local industries, international universities, and non-governmental organizations. Rarely were there domestic HEIs appearing to be their partners. Some HEIs indicated their activities with those partners. Most of their activities focused on the exchange of faculty members and students at partnered universities and the internship opportunities at partnered industries.

1.1.5. Community Involvement

Based on the document analysis, the community involvement of Cambodian HEIs can be illustrated in students' involvement in social activities and HEIs' programs for community development.

Students' Involvement in Social Activities

Based on HEIs' official websites, HEIs appeared to engage their students in social activities related to waste and pollution. In fact, between 2011 and 2014, students from several HEIs in Phnom Penh took part in the environment events such

as “Let’s Do It! Cambodia”, “Clean City Day”, and “Environment Day”. In 2011, totally 2,400 participants including university students and staff from governmental agencies, non-governmental organizations, and local companies came for the “Let’s Do It! Cambodia”. They gathered together in the central Phnom Penh and moved around to remove rubbishes from the seven dirtiest places in this capital city.

HEIs made the announcement about the event on campus to call for their students’ participation. The University of Cambodia alone reported that 60 of its students volunteered to attend the event in 2011. Other HEIs like RUPP, RUA, NUM, NU, BBU, and UP reported about their students’ involvement, but the exact number of their students were not revealed. Later in 2012, it was called “Let’s Do It! Phnom Penh” and they still focused on garbage collection. Up to 2014, university students continued to clean several places in the city in addition to their debate on environmental protection and sustainable consumption in the public. A few students from those HEIs participated in the environmental campaign activities.

Similarly, students in other provincial HEIs showed their participation in the annual “Clean City Day” event in the town of their provinces. In fact, UBB’s students and UME’s students collected rubbishes on areas around Sangkae River in Battambang province. The Provincial Hall organized the event and invited university students to involve. Actually, HEIs could play as an initiative in social activities. Doing so is likely to attract their students’ interest. For instance, in Sihanouk province surrounded by beaches, LU developed community-based services and activities for students to work on health care and coastal cleaning. In this university, students participated as the activity organizer.

Programs of HEIs for Community Development

Based on their official websites, some universities including IU, UP, LU, BBU, NU, and PUC participated in local community activities by engaging their students in field trips and university projects relevant to areas of health, environment, and education. The “Sabai project 2014” aiming to promote health care, well-being, and social welfare of villagers in Cambodia was joined by different groups of medical

students from University of Puthisastra and International University in cooperation with those from an abroad university, National University of Singapore.

University of Puthisastra students had a one-day field trip with the theme "Youth and Community". This field trip brought the students to meet villagers for increasing their environmental awareness and planting small trees in the village. Another, Norton University's field trip to Chrakov village allowed its students to provide health education lessons to 355 families or 1,681 villagers. Up to March 2012, BBU reported that the university organized and participated in 98 events, with the involvement of 6,493 students. In that, it got students involved in a public awareness campaign on health care, traffic rules, and AIDS-HIV, in fundraising to assist disaster victims, and in competition events on youth forum on environment, gender, human rights, law, and child and woman violence. Those HEIs appear their programs which students take the main role in sharing knowledge with community people.

Some other HEIs ran community development projects under the collaboration with their partners. The RUA faculty members led students on a project on water resource management community and livelihood of people in a community. In another case, Polytechnic Institute of Battambang offered free training services such as community-based training to nearby farmers on pig raising, natural fertilizer, and rice crop growing and enterprise-based training on motorbike repairing and food processing. After offering the training courses, its faculty members and students followed up outcomes in local communities. National Technical Training Center launched the projects related to poverty reduction, with the involvement of its faculty members and students. Hence, the HEIs' projects for assisting community people mainly relied on external donors. Students served as assistants to faculty members in the projects.

1.2 Survey

Based on survey research, this section will present research findings in five parts including (1) key human resources, (2) research, (3) curriculum and instruction, (4) partnership development, and (5) community development. There will be a comparison of findings from university leaders and faculty members in key human

resources, research, and partner development. Other findings regarding curriculum and instruction and community involvement will be presented from university leaders, faculty members and university students.

1.2.1 Key Personnel

The survey results of the key personnel present the academic qualification of university leaders and faculty members and the capacity building of faculty members.

Academic Qualification

The survey from 24 HEIs revealed that all HEIs had Master's degree faculty members, whereas 79 percent of them contained PhD faculty members with a mean of 3 PhD holders in each HEI. 12.60 of the HEIs have PhD faculty members above 10 percent of their total faculty members. The HEIs located in Phnom Penh had more PhD faculty members than those in provinces. In line with their opening academic programs, the HEIs had faculty members with the needed expertise. All HEIs had faculty members in the expertise of business and economic-related discipline. It was followed by social science at 66.70 percent of HEIs, engineering and technology at 45.80 percent, environment at 16.64 percent of HEIs, health science at 8.32 percent of HEIs, and sustainable development at 4.16 percent of HEIs, respectively.

Table 4.2 demonstrated that the majority of university leaders revealed the demand of university leaders and faculty members with a doctoral degree and sustainability-related knowledge. Most of them indicated the "strongly agree" category, which was ranked between 56.63 percent and 74.70 percent. University leaders expressed that they needed sustainability-related knowledge (95.18 percent) more than the doctoral degree (83.13 percent). None of them disagreed that they needed the capacity regarding sustainability.

Table 4.2 Perceptions of University Leaders on Academic Qualification

To promote education for sustainability, it is necessary for my university ...	University Leaders (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
that university leaders further their higher education to Doctoral degree.	0.00	13.25	3.61	15.66	67.47
that faculty members further their higher education to Doctoral degree	0.00	7.23	2.41	15.66	74.70
to increase university leaders' sustainability-related knowledge.	0.00	0.00	4.82	38.55	56.63
to increase faculty members' sustainability-related knowledge.	0.00	0.00	1.20	42.17	56.63

Source: The survey of 83 university leaders in 24 HEIs (September 2015)

Table 4.3 Perceptions of Faculty Members on Academic Qualification

To promote education for sustainability, it is necessary for my university ...	Faculty Members (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
that university leaders further their higher education to Doctoral degree.	0.57	4.55	3.98	44.89	46.02
that faculty members further their higher education to Doctoral degree	0.57	3.41	3.41	48.30	44.32
to increase university leaders' sustainability-related knowledge.	1.14	1.70	14.20	48.86	34.09
to increase faculty members' sustainability-related knowledge.	0.57	1.14	11.36	53.98	32.95

Source: The survey of 176 faculty members in 24 HEIs (September 2015)

The majority of faculty members agreed that their HEIs needed university leaders and faculty members with a doctoral degree and to build their capacity regarding sustainability-related knowledge (as shown in Table 4.3). Faculty members appeared to need the doctoral degree (92.61 percent) than sustainability-related knowledge (86.93 percent). A few (about 2 percent) of them disagreed that they needed the capacity regarding sustainability.

There was a slight difference on the ability of faculty members with Master's Degree and PhD to share knowledge with students (as shown in Figure 4.4). The

majority of Master's degree faculty members (28.05 percent) and PhD faculty members (33.33 percent) taught totally 1-50 students in per year. A few faculty members with the two academic qualification levels appeared to influence a large number of students. 10.98 percent of Master's degree faculty members and 8.33 percent of PhD faculty members taught totally 400-500 students. In an average, faculty members shared their knowledge with 152 students annually.

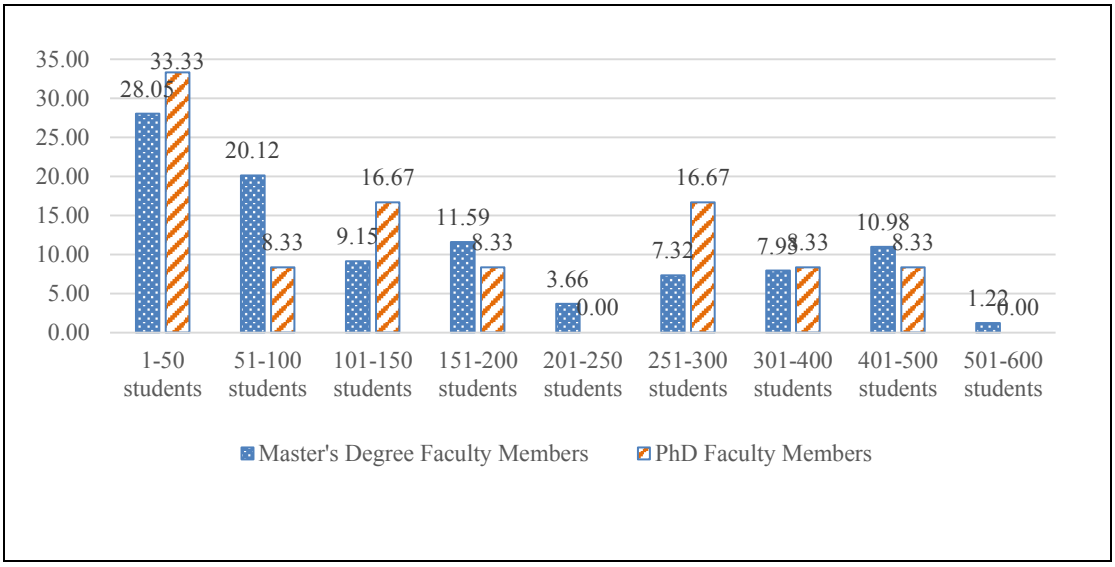

Figure 4.4 Percentage of Faculty Members with Ability to Teach Students Annually
Source: The survey of 176 faculty members in 24 HEIs (September 2015)

Capacity Building of Faculty Members

As shown in Figure 4.5, indicated that less than 50 percent of faculty members were involved in training and academic meetings related to sustainability themes annually within the last five years. Most of them attended the training and academic meetings regarding climate changes, poverty reduction, gender equality, human rights, social responsibility, and modern technology. Those who often and always attended the training and academic meetings were ranged from 6.82 to 21.59 percent and from 1.11 to 6.82 percent, respectively. Between 25.00 and 46.59 percent had never participated in any of those activities.

The environment areas were at the low participation level, whereas economic and social development areas were at the high participation level. In the environment

areas, the climate change theme was at the top while recycling was at the bottom. In social development, faculty members interested in the poverty reduction theme the most and culture of peace theme the least. For economic development, they revealed their highest participation in modern technology theme and their lowest participation in the production and profits theme.

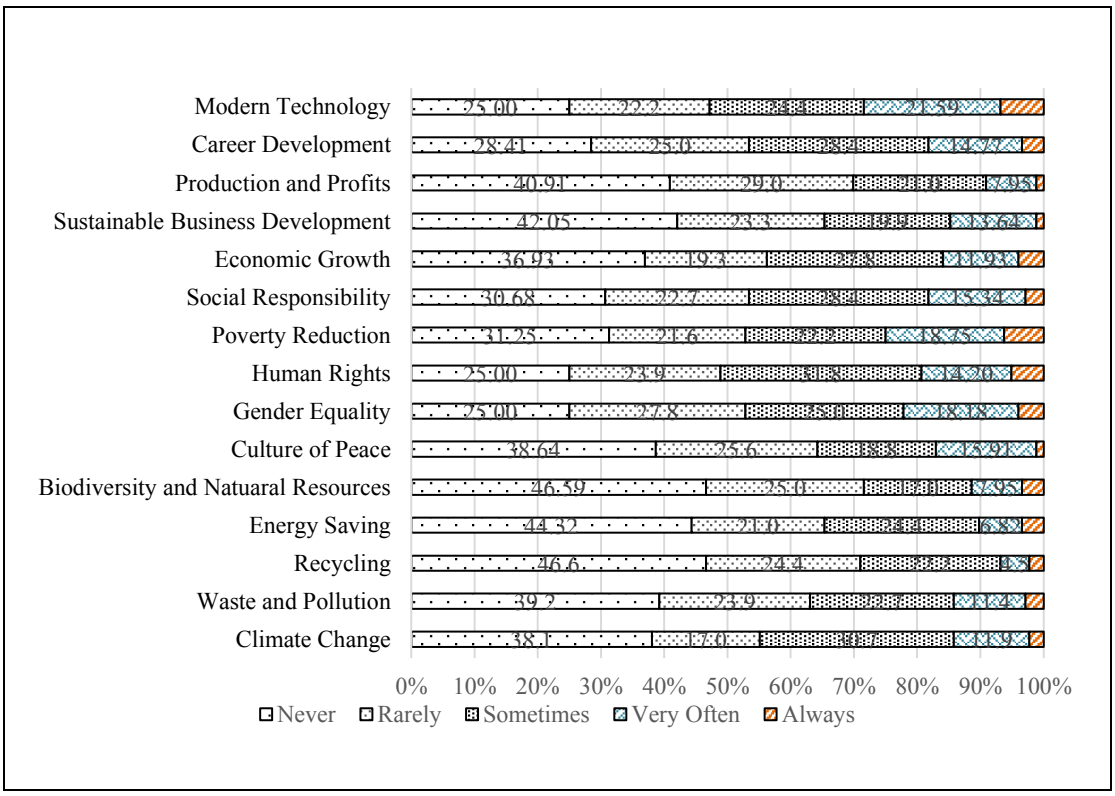

Figure 4.5 Faculty members' Participation in Training and Academic Meetings regarding Sustainability Topics
Source: The survey of 176 faculty members in 24 HEIs (September 2015)

1.2.2 Research

Based on the survey, findings of research in higher education focus on the promotion of research regarding sustainability and the involvement of faculty members in research on sustainability-related topics.

Promotion of Research regarding Sustainability

The majority of university leaders (between 90.36 and 92.77 percent) indicated that their HEIs needed sustainability research advancement by seeking the financial support from donors (as shown in Table 4.4). But 69.88 percent of them

agreed with the use of their HEI' financial resources for promoting research and three times less than this figure were uncertain to express their idea. Only 8.43 percent disagreed that HEIs were necessary to allocate their institutional budget for promoting sustainability research. HEIs appeared to lack financial support for research activities.

Table 4.4 Perceptions of University Leaders on Research related to Sustainability

	University Leaders (%)				
To promote education for sustainability, it is necessary for my university …	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to make research relevant to sustainability issues.	0.00	1.20	6.02	33.73	59.04
to share research results related to sustainability with communities or other institutions.	0.00	1.20	7.23	49.40	42.17
to allocate its institutional budget for research activities related to sustainability.	0.00	8.43	21.69	39.76	30.12
to seek research grants from other institutions to conduct research related to sustainability.	0.00	0.00	8.43	31.33	60.24

Source: The survey of 83 university leaders in 24 HEIs (September 2015)

Similarly, between 69.89 and 80.68 percent of faculty members agreed that their HEIs needed to promote sustainability research (as shown in Table 4.5). Only 2.27 percent of them disagreed with the need of HEIs to promote sustainability research. 5.68 percent of them disagreed with the use of its institutional budget for supporting the research activities. The majority of university leaders and faculty members needed their universities to promote the research activities related to sustainability along with opportunities to obtain research grants (as shown in Table 4.4 and Table 4.5). But the percentage of faculty members who agreed with the sustainability research was about 10 percent less than that of university leaders. They revealed research at their HEIs depend on the external assistance more than the internal support.

Table 4.5 Perceptions of Faculty Members on Research related to Sustainability

To promote education for sustainability, it is necessary for my university …	Faculty Members (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to make research relevant to sustainability issues.	0.57	1.70	19.89	49.43	28.41
to share research results related to sustainability with communities or other institutions.	0.57	2.27	17.05	49.43	30.68
to allocate its institutional budget for research activities related to sustainability.	0.57	5.11	24.43	43.18	26.70
to seek research grants from other institutions to conduct research related to sustainability.	0.57	2.84	15.91	47.16	33.52

Source: The survey of 176 faculty members in 24 HEIs (September 2015)

Involvement of Faculty Members in Research

Of 176 faculty members, from 8.52 to 18.75 percent had involved in research regarding sustainability topics as displayed in Figure 4.6. Most of them conducted research related to modern technology and poverty reduction. It was followed by topics related to climate change, waste and pollution, and gender equality from 13.64 to 13.07 percent of faculty members respectively. 8.52 percent and 9.09 percent of them had research activities concerning the culture of peace and social responsibility. Additionally, it indicated about 80 percent of faculty members had never engaged in research activities.

There was a slight distinction in the research involvement of faculty members from public and private HEIs (as shown in Table 4.6). Faculty members at public HEIs appeared to lead in most research areas, except for topics concerning the culture of peace, gender equality, human rights, economic growth, and sustainable business development. The top five research areas in both public and private HEIs included poverty reduction, modern technology, climate change, waste and pollution, and biodiversity and natural resources.

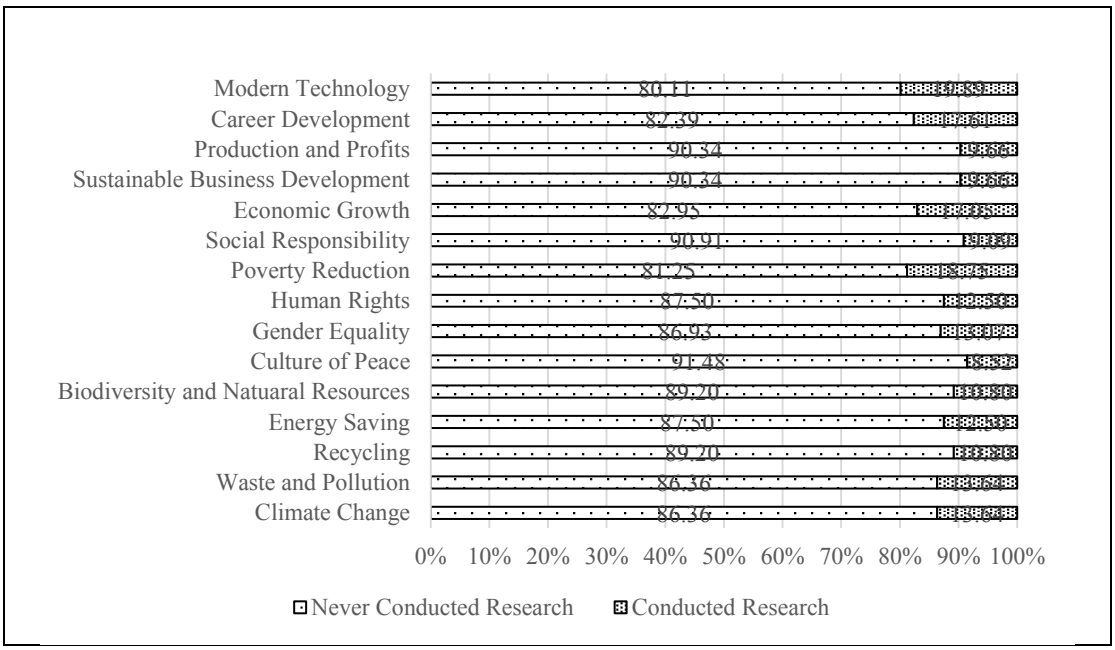

Figure 4.6 Faculty members' Involvement in Research Activities regarding Sustainability Topics within the Last Five Years
Source: The survey of 176 faculty members in 24 HEIs (September 2015)

Table 4.6 Percentage of Faculty members Conducting Research related to Sustainability

Areas of Research	*Faculty Members in Public HEIs (%)*	*Faculty Members in Private HEIs (%)*
Climate Change	16.28	12.22
Waste and Pollution	15.12	13.33
Recycling	13.95	6.67
Energy Saving	15.12	10.00
Biodiversity and Natural Resources	17.44	11.11
Culture of Peace	6.98	10.00
Gender Equality	10.47	12.22
Human Rights	9.30	13.33
Poverty Reduction	18.60	17.78
Social Responsibility	9.30	8.89
Economic Growth	10.47	17.78
Sustainable Business Development	8.14	10.00
Production and Profits	10.47	6.67
Career Development	15.12	13.33
Modern Technology	19.77	14.44

Source: The survey of 176 faculty members from 24 HEIs (September 2015)

Figure 4.7 indicated that the maximum research projects of faculty members do not exceed ten within the last five years. Almost all faculty members had less than three research projects in various disciplines. Meanwhile, below one-tens of faculty members had conducted research up to ten projects, most of which were associated with biodiversity and natural resources, and modern technology topics. The majority of faculty members from public HEIs appeared to have a greater number of research projects. It showed the unequal opportunities of faculty members from all HEIs in accessing to research grants.

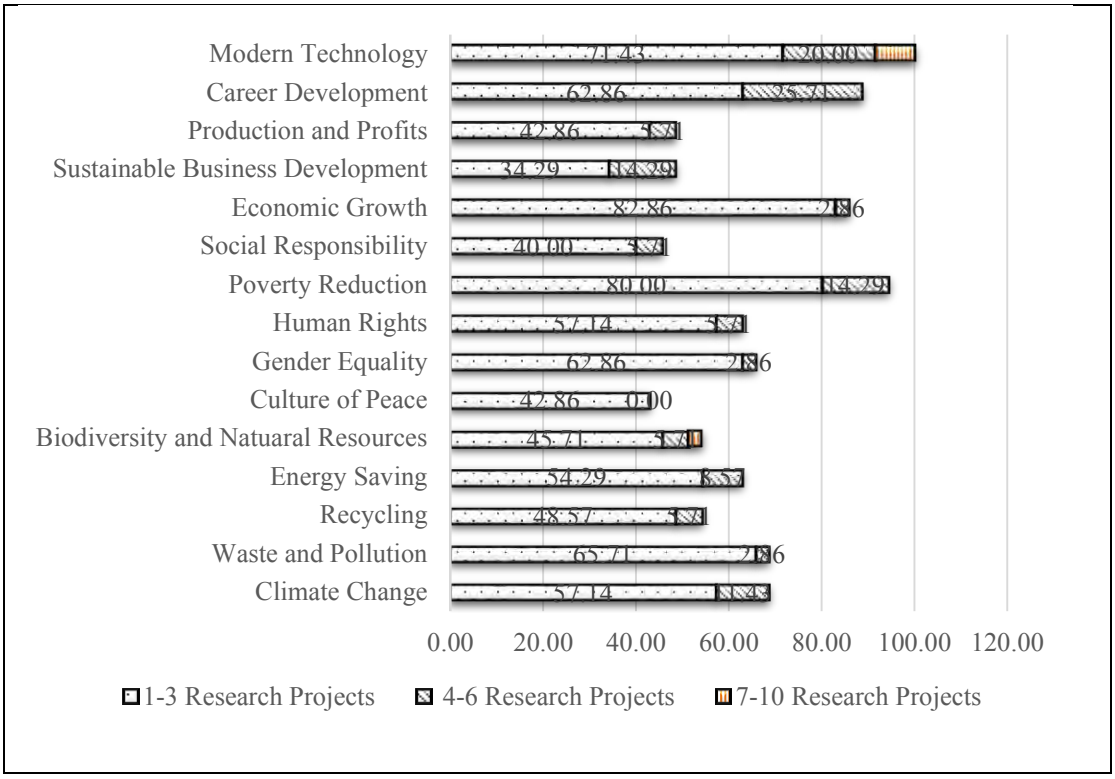

Figure 4.7 Number of Faculty members' Research regarding Sustainability Topics within the Last Five Years
Source: The survey of 176 faculty members from 24 HEIs (September 2015)

1.2.3 Curriculum and Instruction

In the curriculum and instruction based on the survey from university leaders and faculty members, findings regarding the development of curriculum and instruction for promoting sustainability and the integration of sustainability concepts into instruction.

Curriculum and Instruction Development

The majority of university leaders appeared to need the curriculum development with sustainability integration as a whole more than the instruction of a sustainability-related course as displayed in Table 4.7. 91.57 percent of university leaders agreed that HEIs were necessary to integrate sustainability concepts into the curriculum of their academic programs and to develop extra-curricular activities to raise students' awareness of sustainability. 72.29 percent of them agreed with teaching a sustainability-related course to students in all disciplines. 84.34 percent of them agreed with the promotion of project-based learning in instruction to improve students' practices.

Table 4.7 Perceptions of University Leaders on Curriculum and Instruction

	University Leaders (%)				
To promote education for sustainability, it is necessary for my university …	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to integrate sustainability concepts into curriculum.	0.00	0.00	8.43	39.76	51.81
to develop extra-curricular activities to raise students' awareness on sustainability.	0.00	0.00	8.43	49.40	42.17
to teach a sustainability-related course to students in all disciplines.	0.00	10.84	16.87	46.99	25.30
to promote project-based learning related to community development.	0.00	1.20	14.46	53.01	31.33

Source: The survey of 83 university leaders in 24 HEIs (September 2015)

As shown in Table 4.8, the majority of faculty members (ranged from 73.30 to 84.09 percent) agreed that their HEIs needed to promote sustainability through curriculum development, extra-curricular activities, course design, and teaching assignment. However, 10.84 percent of them disagreed with the instruction of a sustainability-related course. Noticeably, Table 4.7 and Table 4.8 indicated the largest percentage of both university leaders (91.57 %) and faculty members (84.09 %) revealed that extra-curricular activities were necessary for HEIs to pay a great attention. However, the least attention of the both appeared on teaching a sustainability-related course.

Table 4.8 Perceptions of Faculty Members on Curriculum and Instruction

To promote education for sustainability, it is necessary for my university …	Faculty Members (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to integrate sustainability concepts into curriculum.	1.14	3.41	22.16	51.14	22.16
to develop extra-curricular activities to raise students' awareness on sustainability.	0.00	2.84	13.07	52.84	31.25
to teach a sustainability-related course to students in all disciplines.	1.14	3.41	22.16	51.70	21.59
to promote project-based learning related to community development.	0.00	2.27	21.02	57.39	19.32

Source: The survey of 176 faculty members from 24 HEIs (September 2015)

Sustainability Integration into Instructions

All 24 HEIs had been operating academic programs in business and economics discipline (as displayed in Figure 4.8). A half of them taught the social science, and engineering and technology disciplines. Meanwhile, only a few HEIs educated students in the agriculture, community development, and environmental areas. Focusing largely on business and economic disciplines, HEIs apparently gave little importance to environment pillar.

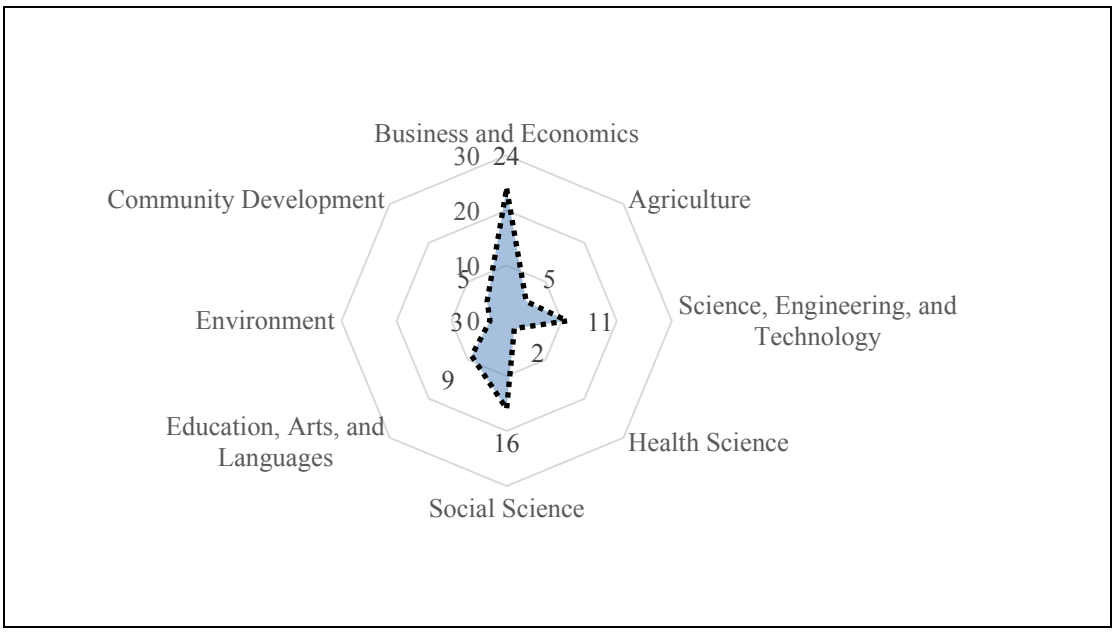

Figure 4.8 Number of HEIs Operating Various Disciplines
Source: Survey from 24 HEIs (September 2015)

There was a moderate level of faculty members' involvement in promoting debates on sustainability-related topics (as shown in Figure 4.9). In general, faculty members between 40 percent and 60 percent integrated those topics into their instruction. Those faculty members taught courses respecting the agriculture, environment, education, social science, community development, business and economics, and engineering and technology disciplines. The top five topics of their discussion included poverty reduction, gender equity, career development, modern technology, and human rights. Meanwhile, they least frequently talked about production and profits, sustainable business, energy saving, biodiversity, and recycling. Hence, faculty members appeared to pay considerable attention to topics about the social development aspect, especially poverty reduction. In contrast, topics on the environmental aspects were less attractive.

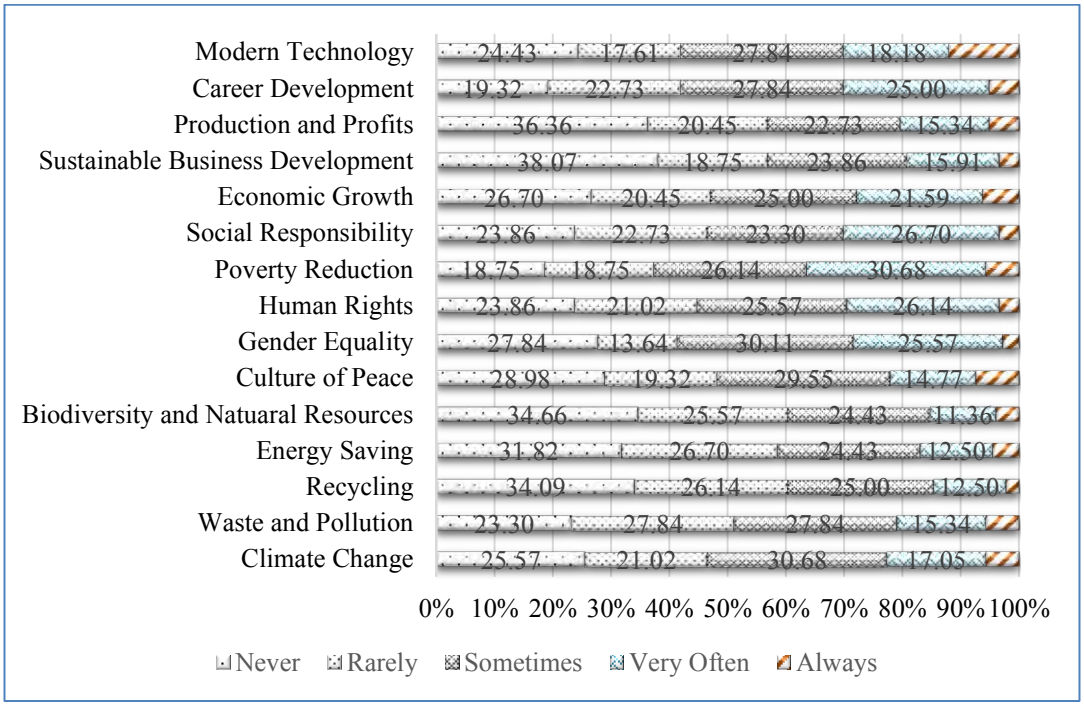

Figure 4.9 Faculty Members' Instruction regarding Sustainability-related Topics
Source: The survey of 176 faculty members from 24 HEIs (September 2015)

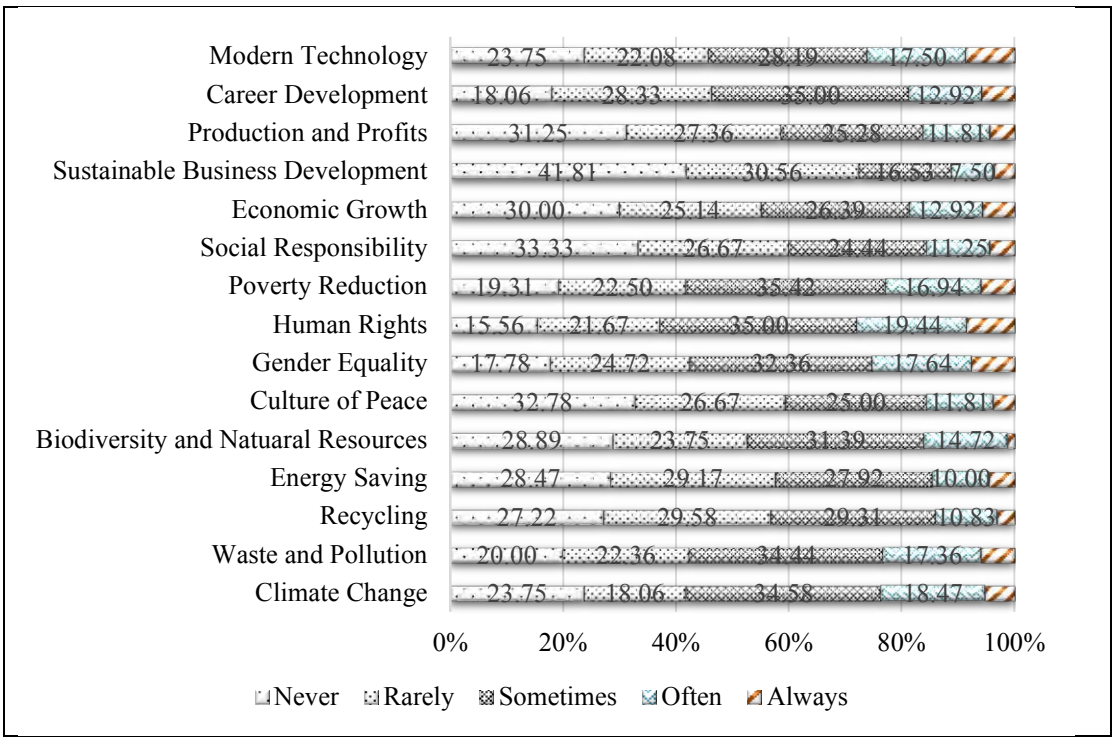

Figure 4.10 Students' Learning regarding Sustainability-related Topics
Source: Survey of 720 students from 24 HEIs (2015)

University students appeared to engage in learning about topics regarding social and environmental aspects the most frequently (as shown in Figure 4.10). The majority of them indicated that they had *sometimes, often,* and *always* learnt topics on human rights, poverty reduction, gender equality, climate change, and pollution and waste. The majority of them revealed that their classes had *never* and *rarely* involved the themes regarding sustainable business development, social responsibility, culture of peace, and production and profits.

In extra-curricular activities, Figure 4.11 indicated that there were university students involved in debating topics regarding social aspect the most. The majority of university students discussed human rights, poverty reduction, career development and climate change from the most to the least. A few students talked about waste and pollution, recycling, energy saving, and sustainable business development frequently.

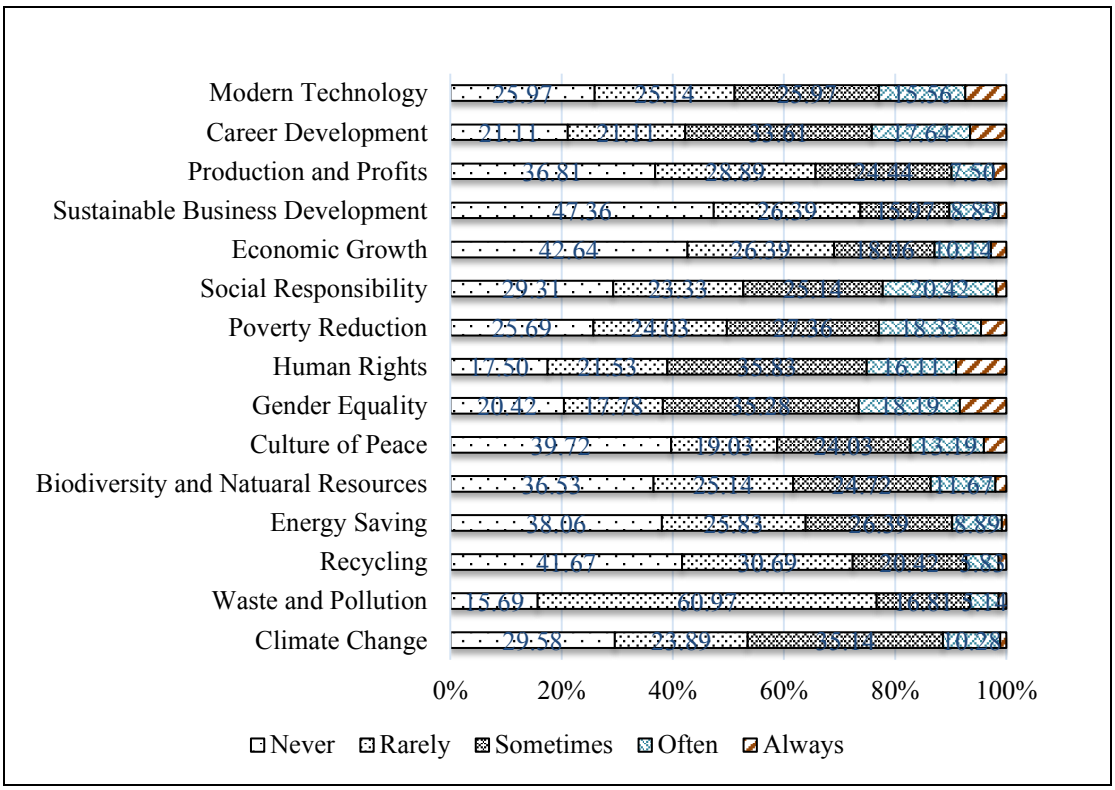

Figure 4.11 Student Involvement in Extra-Curricular Activities regarding Sustainability-related Topics
Source: Survey of 720 students from 24 HEIs (2015)

1.2.4 Partnership Development

The partnership development of HEIs to promote sustainability emphasizes the collaboration of Cambodian HEIs with other HEIs, Cambodian governmental institutions, international governments or organizations, non-governmental organizations, and private sector.

Table 4.9 indicated that the majority of university leaders (ranged from 89.16 percent to 100 percent) revealed that their HEIs needed academic assistance from the private sector, non-governmental organizations, Cambodian government, international governments/ organizations, and other HEIs, from the least to the most. On the top, all of them agreed with partnership with other HEIs. 87.95 percent of them looked for academic assistance from international governments or organizations. The percentage of university leaders who agreed that HEIs necessarily provided their technical assistance for building the capacity of businesses/industries' staff and NGOs' staff at the bottom at 59.66 percent and 72.16 percent respectively.

Table 4.9 Perceptions of University Leaders on Higher Education Partnership

To promote education for sustainability, it is necessary for my university/institute ...	University Leaders (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to seek academic assistance for other HEIs.	0.00	0.00	0.00	34.94	65.06
to provide academic assistance to other HEIs.	0.00	0.00	4.82	45.78	50.60
to seek academic assistance from the governmental agencies.	0.00	3.61	7.23	43.37	45.78
to provide technical assistance for capacity building of the governmental staff.	0.00	4.82	15.66	54.22	25.30
to seek academic assistance from international governments/organizations.	0.00	1.20	10.84	32.53	55.42
to seek academic assistance from non-governmental organizations.	0.00	1.20	9.64	40.96	48.19
to provide technical assistance for capacity building of non-governmental organizations' staff.	0.00	3.61	24.10	54.22	18.07
to seek sponsorship for academic assistance from companies/industries.	0.00	1.20	9.64	45.78	43.37
to provide technical for capacity building of companies/industries' staff.	1.20	6.02	22.89	46.99	22.89

Source: The survey of 83 university leaders in 24 HEIs (September 2015)

Noticeably, most university leaders agreed with seeking academic assistance than providing technical assistance for the capacity building of partners' staff. Based on faculty members' responses, there was no difference between the need for academic assistance from (89.16 percent) and the capacity building support for non-governmental organizations' staff (89.16 percent). The difference gap was ranged from 0.00 percent (with non-governmental organizations) to 19.28 percent (with the private sector). With other HEIs, there was the difference at 3.61 percent of faculty members (100 percent versus 96.39 percent). With the Cambodian government institutions, there was the difference at 9.64 percent of faculty members (89.16 percent versus 79.52 percent).

Table 4.10 Perceptions of Faculty Members on Higher Education Partnership

To promote education for sustainability, it is necessary for my university/institute ...	Faculty Members (%)				
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to seek academic assistance for other HEIs.	0.00	0.00	1.14	44.32	54.55
to provide academic assistance to other HEIs.	0.00	0.00	3.41	46.02	50.57
to seek academic assistance from the governmental agencies.	1.14	3.98	22.73	53.41	18.75
to provide technical assistance for capacity building of the governmental staff.	0.00	6.25	26.14	46.59	21.02
to seek academic assistance from international governments/organizations.	1.70	2.84	19.32	51.14	25.00
to seek academic assistance from non-governmental organizations.	1.70	0.57	23.86	47.73	26.14
to provide technical assistance for capacity building of non-governmental organizations' staff.	0.57	3.98	31.25	53.41	10.80
to seek sponsorship for academic assistance from companies/industries.	1.70	1.14	23.30	52.84	21.02
to provide technical for capacity building of companies/industries' staff.	1.14	3.41	35.80	44.89	14.77

Source: The survey of 176 faculty members from 24 HEIs (September 2015)

The majority of faculty members (ranged from 72.16 percent to 98.86 percent) agreed that their HEIs needed the academic assistance from Cambodian government, the private sector, non-governmental organizations, international governments/ organizations, and other HEIs to promote sustainability, from the least to the most (as displayed in Table 4.10).

Meanwhile, most faculty members agreed that HEIs needed to seek the academic assistance more than to provide technical assistance for the capacity building of their partners' staff. The difference gap was ranged from 1.70 percent to 14.20 percent. 72.16 percent of them agreed with the need for the academic assistance from Cambodian government, whereas 67.61 percent of them agreed with the support

providing to the government institutions. 73.86 percent of them agreed with the need for academic assistance from private sector, while 59.66 percent of them agreed with providing assistance in building capacity of staff in the private sector. However, the partnership of HEIs with non-governmental organizations (73.86 percent versus 72.16 percent) and other HEIs (98.86 percent versus 96.59 percent) revealed the minor difference between the need for academic assistance and the provision of the capacity building.

1.2.5 Community Involvement

In the community involvement of Cambodian HEIs, the research findings based on the survey cover the promotion of HEIs' engagement in communities and the students' involvement in community activities regarding sustainability-related areas.

Higher Education Engagement in Communities

Table 4.11 Perceptions of University Leaders on Community Involvement

	University Leaders (%)				
To promote education for sustainability, it is necessary for my university …	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to promote students' community service learning.	0.00	1.20	8.43	32.53	57.83
to promote students' participation in social activities related to sustainability.	0.00	0.00	7.23	33.73	59.04
to promote faculty members' participation in social activities related to sustainability.	0.00	3.61	16.87	55.42	24.10
to learn from local communities for knowledge development.	0.00	0.00	7.23	46.99	45.78

Source: The survey of 83 university leaders in 24 HEIs (September 2015)

The majority of university leaders indicated the need for promoting HEIs' community involvement (as shown in Table 4.11). On the top, totally 96.36 percent of them agreed to promote students' community service learning at their HEIs and 57.83 percent of them indicated the "strongly agree." The promotion of students'

participation was supported by 92.77 percent of university leaders, whereas that of faculty members' participation was agreed by 79.52 percent of them that was the bottom. University leaders appeared to support the students' participation than the faculty members' participation.

Table 4.12 Perceptions of Faculty Members on Community Involvement

	Faculty Members (%)				
To promote education for sustainability, it is necessary for my university …	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
to promote students' community service learning.	0.00	2.84	16.48	53.41	27.27
to promote students' participation in social activities related to sustainability.	0.00	2.84	14.77	56.25	26.14
to promote faculty members' participation in social activities related to sustainability.	0.00	1.17	17.05	57.39	23.86
to learn from local communities for knowledge development.	0.57	1.14	16.48	58.52	23.30

Source: The survey of 176 faculty members from 24 HEIs (September 2015)

The majority of faculty members (ranged from 80.68 percent to 82.39 percent) agreed and strongly agreed to promote community involvement of Cambodian HEIs (as shown in Table 4.12). On the top, the promotion of students' participation in social activities was supported by 82.39 percent of faculty members that was 1.14 percent greater than the promotion of faculty members' participation. At the bottom, 80.68 percent of them showed the agreement on the enhancement of community service learning.

Student involvement in Sustainability-related Areas

Figure 4.12 indicated that majority students were seemingly absent in participating in community activities during the three-year period at their individual university/institute. Among 720 students, at most 30.29 percent, 23.45 percent and 6.51 percent 'sometimes,' 'very often' and 'always' involved in sustainability-related activities respectively. The top five areas related to human rights, gender equality, poverty reduction, waste and pollution, and career development orderly from the most

to the least. Other five areas that students got involved in the least included sustainable business development, economic growth, production and profit, recycling and climate change. Students' participation in activities related to social development aspect appeared to be in the top rank. The environment and economic development aspects were apparently in the second and third ranks respectively. Overall, there was shortage of Cambodian university students' involvement in promoting sustainability in local communities.

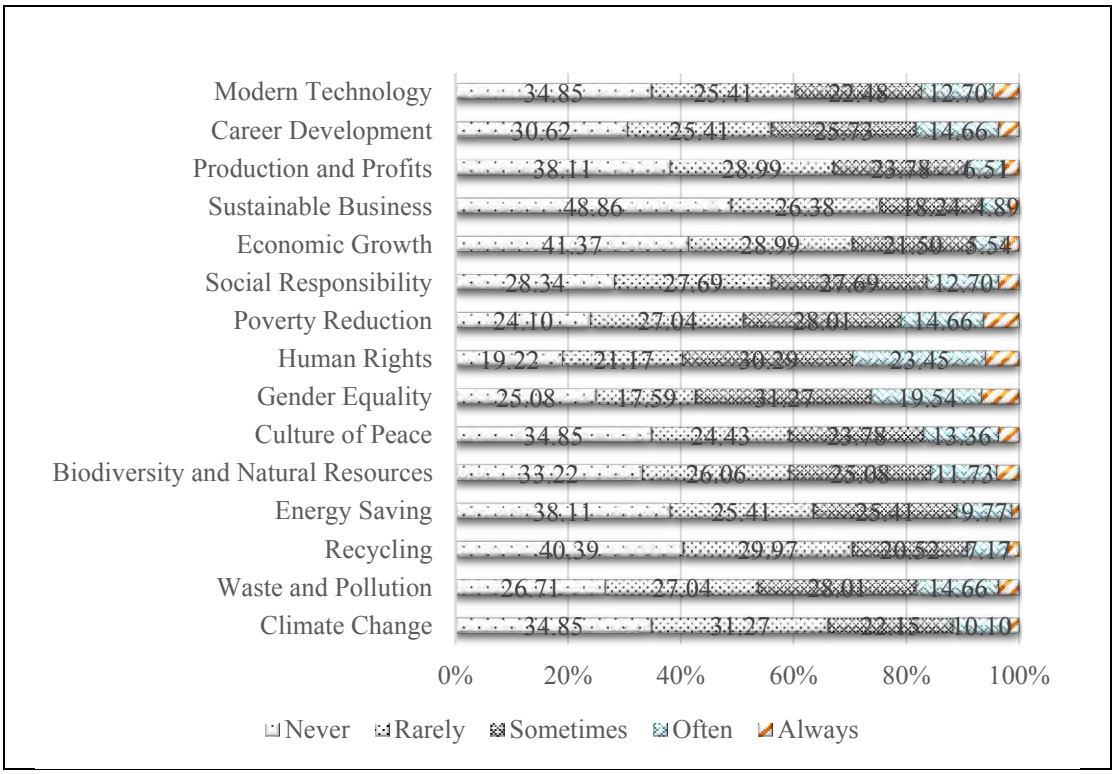

Figure 4.12 Student Involvement in Community Activities on Areas related Sustainability
Source: Survey of 720 students from 24 HEIs (2015)

University students indicated the number of people they had shared their knowledge with was from one to 500 annually. In an average, one student had an ability to exchange their knowledge with 25 people per year. As shown in Figure 4.13, 74.44 percent of 720 students indicated they had shared knowledge with 1-25 people. It was followed by 26-50 people (13.33 percent of students) and 51-100 people (8.06 percent of students). Only a few students could use their knowledge to increase public awareness with the large number of people. 1.10 percent of students had shared knowledge with 151-200 people per year. Almost a half of that, 0.69

percent of them could share their knowledge with up to 400 people. 0.28 percent of them appeared to have an ability to transfer their knowledge to 500 people per year.

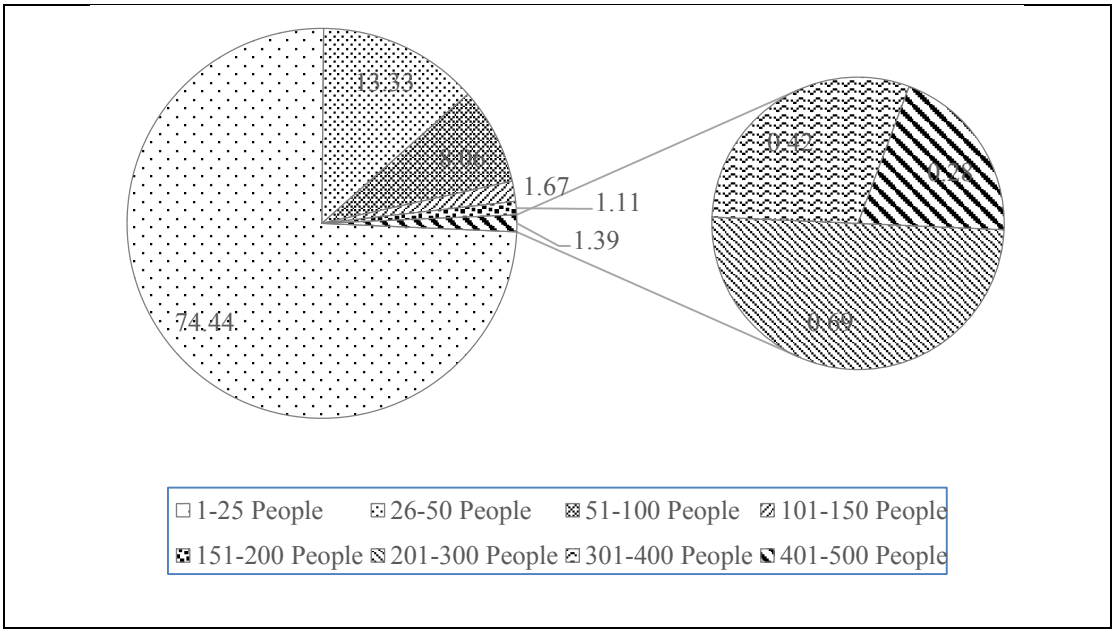

Figure 4.13 Proportion of Students Sharing their Knowledge with People Annually
Source: Survey of 720 students from 24 HEIs (2015)

Figure 4.14 indicated how HEIs work to increase public awareness of environmental issues by employing an environmental capacity building model. This model could help HEIs determine a goal and plan of faculty capacity building, student capacity building, and local community people capacity building within five years and ten years in advance. Using this model, HEIs could identify how many people they increase the awareness of environmental problems in one year, five years, and ten years, for instance.

The model showed three stages of the capacity building. First, in the faculty capacity building stage, HEIs needed to know how many faculty members had the capacity for promoting environmental concerns and how many of them had taught the environmental concepts to students. Second, HEIs needed to identify how many students had the awareness of environment concepts and had shared their knowledge with local community people in the student capacity building stage. Third, for the community capacity building, HEIs needed to identify how many community people their students share knowledge with annually.

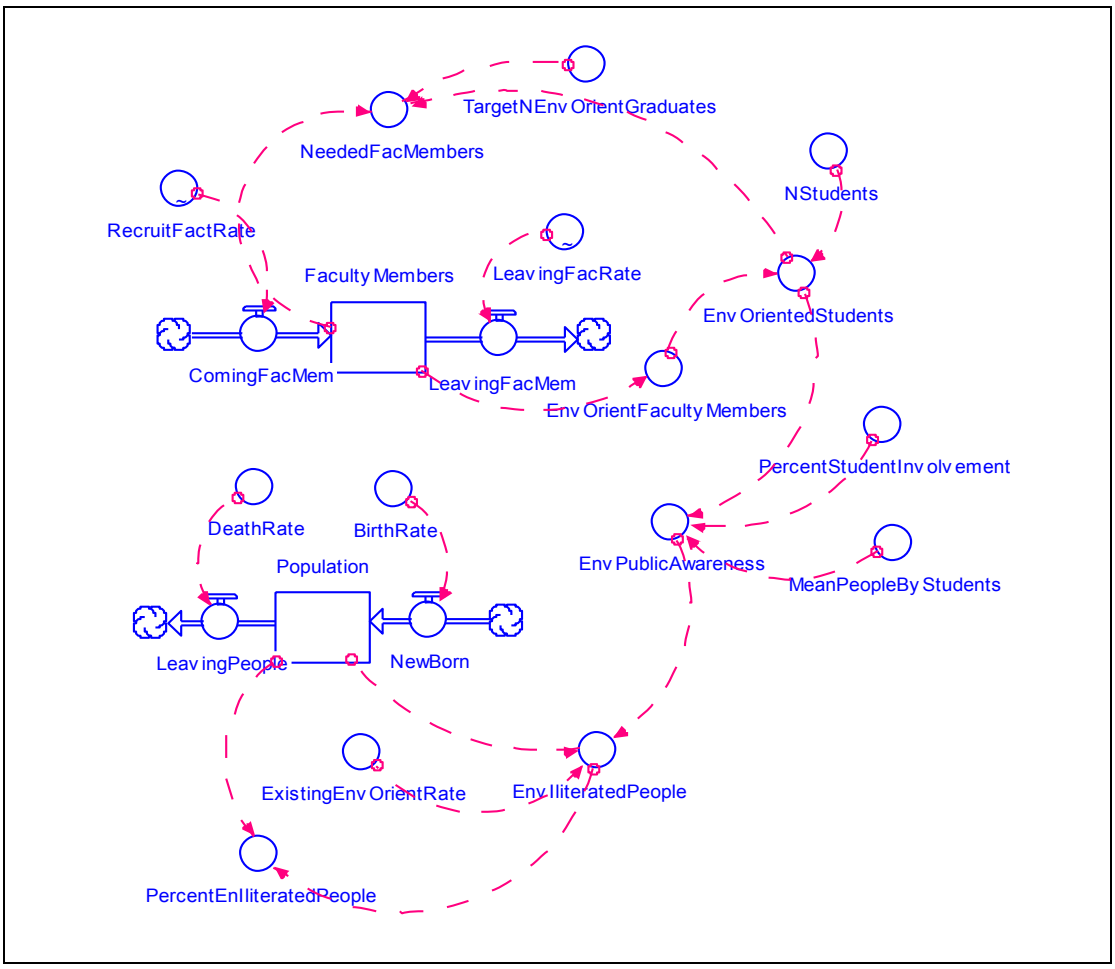

Figure 4.14 A Model of Environmental Capacity Building in Higher Education
Source: Author's Analysis based on Environmental Capacity Building and Survey

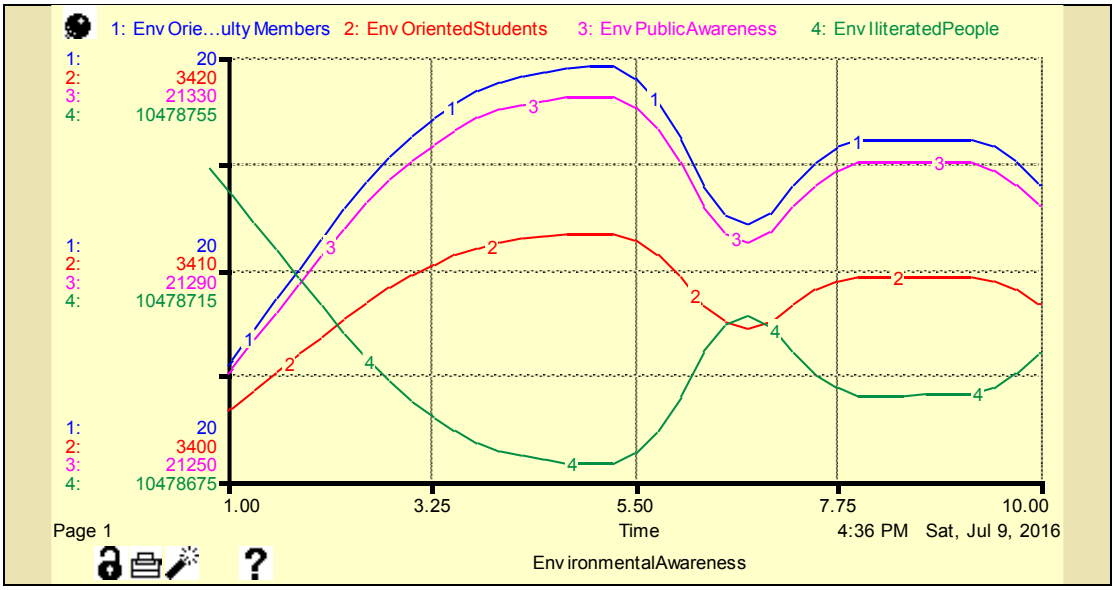

Figure 4.15 HEIs' Impact on the Raise of Public Awareness of Environmental Issues
Source: Author's Analysis based on Survey (September 2015)

Having the statistic of faculty capacity building, student capacity building, and community capacity building, HEIs could have a better concept to set an action plan in increasing public awareness of environmental issues. HEIs would have various options of activities for consideration to maximize their impacts on public awareness.

An evidence of the environmental capacity building model shown in Figure 4.15 was based on the case of HEIs providing academic programs on the environmental discipline. The capacity of HEIs for raising public awareness involved three steps: (1) from HEIs to the capacity building of faculty members; (2) from faculty members to student awareness of environment; and (3) from student involvement to increasing local community people's awareness.

Faculty engagement in capacity building activities appeared to a major influenced factor on student awareness and public awareness. When the number of faculty members kept increasing at 5 percent of totally 50 environment-oriented faculty members, the number of the students increased up to 3,412 and that of public awareness went up to 21,323 people within the first five years. When the number of faculty members dropped down, student awareness and public awareness appeared to decrease significantly. Meanwhile, the environment-illiterate people increased along with the Cambodian population. Once HEIs had more faculty members and students with environmental capacity, the number of illiterate people turned down. There appeared to be a slow progress of building public awareness if the capacity of faculty member and students was not enhanced and HEIs lacked the student engagement in community activities.

1.3 Interviews

The research findings based on interviews with 15 university leaders from different HEIs, 14 faculty members from seven different disciplines, and key experts are presented in the key personnel, the research, the curriculum and instruction, the partnership development, and the community involvement as the following.

1.3.1 Key Personnel

Based on the interviews, the findings for the academic qualification and capacity building of key personnel were presented as below.

Academic Qualification

The interviews with university leaders indicated that the HEIs paid proper attention to the academic qualification of faculty members. All of them expressed an intention to have PhD faculty members at each of their college or faculty. Still, they had some challenges to attract PhD academics. Because of the limited financial resource, some private HEIs recruited faculty members by part-time condition instead of employing full-time ones (UL01; UL02; UL05; UL07; UL10; UL14). The number of part-time academics was greater than the full-time ones. To improve their faculty members' academic qualification, some HEIs encouraged their faculty members to pursue a Master's degree and PhD degree by waiving school fees from 30 percent up to 100 percent (UL01; UL02) and providing a partial scholarship to study abroad (UL06; UL14).

The minimum academic qualification of lecturers was the Master's degree with a plus of experiences. Then, faculty development from Master to PhD was focused.

> "[…]. We focus on the academic degree that suits a particular position and the working experiences. … in the undergraduate program, we choose faculty members who hold Master's degree … . We choose faculty members who obtain Doctoral degree to give lectures in a post-graduate program. […]. It is not a big problem for us to find qualified faculty members and staff. Up to now, most of our personnel have Master's degree. Now we encourage them to pursue PhD. […]." (R01, 27th August 2015)

> "[…]. The vision of our university is to develop human resources with social responsibility. […]. To achieve this, the university leaders, faculty members, and non-academic staff have to be qualified in roles and responsibilities. Educational background, experiences, and personality are what we take into consideration for staff recruitment. Master's degree is the minimum requirement for university leaders and faculty members. In fact, most of them are PhD holders. […]." (R02, 14th September 2015)

Some private HEIs met a challenge of finding their personnel with high academic qualification due to their limited financial resources. They had more part-time faculty members than full-time ones. They needed a participation of fresh graduates who intended to contribute to the development of higher education in the country.

> "[…]. Qualified personnel, of course, sometimes are not easy to find for management positions. […]. A couple of months ago, we could not find persons to suit some positions such as assistants to deans, research assistants, director in the academic affair, and so on. […]. However, we can hire qualified faculty members by both full-time and part-time contracts. Most of them are the part-time faculty members. The pay for faculty members at our university is at a higher standard if compared to that of other universities. […]." (R05, 4th September 2015)

> "[…]. We emphasize the selection on academic merits and research experiences. […]. For Cambodian universities, it is hard to apply such international standards. It is crucial, we understand. We want to promote faculty members and staff's living, but we cannot. We have limited resources. If they change their attitude, they have a chance to contribute to the country through education sector." (R07, 2nd September 2015)

A university leader appeared to need faculty members with the expertise in line with their academic programs such as agriculture, business and information technology.

> "[…]. As a public university, we request faculty members and staff from the Ministry of Education. We have no right to recruit by ourselves. […]. Actually, we think about academic qualification and experiences. At least, those who hold Master's Degree can be accepted. We [need] some faculty members with a doctoral degree, but they rarely come to our university. So, we encourage our [current] faculty members to take PhD [at a foreign university]. Currently, we have two PhDs, and other two faculty members are studying abroad. We needed a high qualification of faculty members in agriculture and business disciplines. […]." (R10, 9th August 2015)

The interviews revealed that all of them expressed an intention to have PhD academics at each of their college or faculty. Choosing PhD academics to work as the part-time faculty members was a choice due to the shortage of financial resources. At

the same time, HEIs encouraged their faculty members to continue their higher education up to the PhD.

Capacity Building of Key Personnel

Based on the interviews with the university leaders, the capacity building of key personnel in Cambodian higher education related to both degree education and non-degree education. The former indicated the support of key personnel to pursue a higher degree. The latter related to the engagement of key personnel in training activities, conferences, and workshops.

Some HEIs encouraged their faculty members to gain Master's degree or PhD at their HEI by waiving some school fees. Faculty members were provided with a partial scholarship once they study at a foreign university. Some university leader revealed:

> "[…]. For the degree, as a principle of the university, all the personnel are encouraged to further their higher education at university by granting full *scholarship for school fee* for the first degree and 30-50 percent for the second degree. […]." (UL02, 14th September 2015)

> "[…]. I think it is important to keep the personnel on capacity building or training activities. Then, the university has to *motivate* them by providing appropriate position or ranking profession. The personnel capacity building at our university is categorized into two ways. First, the university support personnel to further their education under university's scholarship in other countries and a scholarship that they have been granted. We sent our personnel to do Master's and Doctoral degree in Payab (Thailand), Shanghai, and Hong Kong. Their most majors relate to education and management. […]." (UL06, 27th August 2015)

> "[…]. Faculty members at our university are encouraged to further their education at Master's degree, at least. Also, they take a doctoral degree in our partnered universities in Thailand, Malaysia, and China. As a vision of the university leader, the qualified personnel has to be able to assess needs of the society by conducting research in response to those needs. […]." (UL14, 23rd September 2015)

Few HEI leaders showed that most of their students were more interested in business-related disciplines than in environment-related disciplines because job opportunities of business-related disciplines shared broader market. Meanwhile, they

expressed their concern on environmental issues and proposed an involvement of the government and the Ministry of Education to take a stronger action for promoting sustainability in higher education. A few university leaders said:

> "[….]. … under cooperation with some foreign universities, we offer scholarship opportunities to faculty members and other staff to further their education. … disciplines that are easy to be employed in markets such as *business-related disciplines*. […]. We have many students in business-related disciplines, so we prepare our faculty members in these disciplines too. If they take degrees in environment fields, the question is what they can do and where they work after graduation. However, I would suggest the Ministry of Education as well as the Royal Government [of Cambodia] put a great concern on *climate change and environment issues*. … Ministry of Education find ways to integrate sustainable development concepts into higher education to help universities as well as university students be aware of development issues. […]." (UL15, 23rd September 2015)

A university leader said his university had invited experts to share knowledge and experiences regarding "environment, conflict and peace, culture, and leadership" with their faculty members; however, the challenge was that only a few faculty members attended the seminars (UL02). Another university leader expressed his university had conducted seminars regarding economic, development, and environmental issues almost every year and weekend time for organizing academic meetings could be suitable schedule for their faculty members (UL05).

University leaders recognized that faculty members needed the knowledge of other relevant disciplines in addition to their expertise. Some university leaders revealed:

> "[…]. As faculty members in our university, they should understand *what people in our society need* so that they can prepare the students to meet a target of serving the society. [...]. …. We [really] want our faculty members, staff, and students to be very knowledgeable about current social issues. […]. " (UL14, 23rd September 2015)

> "[…]. Faculty members have to develop and to update their knowledge in response to trends of social changes. Knowledge of *technology* and *social development* is a plus to their expertise. […]." (UL15, 23rd September 2015)

Few university leaders revealed that the culture of new knowledge sharing within a team was deployed for faculty development. Faculty members were grouped in teamwork and the team members shared their knowledge and experiences they gained from academic meetings or training activities (UL01; UL10). A university said:

> "[…]. To improve faculty members' capacity in sustainability, our university builds a *culture of knowledge and experience sharing*. Faculty members and leaders in each Faculty work in a group to conduct research regardless their position. The main thing is about the promotion of *teamwork and sharing*. […]. We can learn from each other. Once someone obtains new knowledge from national and international seminars, he/she can share the new knowledge with others within the groups or the university. Usually, we do not conduct a seminar at the university level. But our faculty members conduct informal discussion or meeting to exchange their new knowledge and experiences. […]." (UL10, 9th August 2015)

The capacity building activities appeared to have the intention to improve key personnel's knowledge of their expertise and sustainability-related disciplines such as environment, social development, economic and development issues. HEI leaders recognize that faculty members needed knowledge in other relevant disciplines in addition to their expertise. Some university leaders expressed:

> "[…]. In general, our university creates a culture for continuous development and training to support personnel. First, we send them to seminars at other institutions. After that, they share the newly obtained knowledge to others in the university. Second, we have an annual conference. […]. Third, we encourage them to attend in-house training and on-campus workshop." (UL01, 27th August 2015)

> […]. For non-degree, the personnel is invited to the seminars and workshops organized at the campus. In each month, there are two or three on-campus seminars and workshops related to *environment, conflict and peace, culture, and leadership* …. The [problem] is that only a few personnel attend the seminars. […]. Sometimes, our university sends our personnel to [international] conferences up on their disciplines under the support of the university. Sometimes, we send them to join meetings organized by the Ministry of Education." (UL02, 14th September 2015)

> "[…]. We usually have workshops and seminars regarding economic development, environment, etc. almost every year. For instance, in

> October this year, we organized AEF [ASEAN Economic Forum] concerning *economic and development issues* with our partnered organizations under sponsor of funders ….. […]. About 50 percent of our faculty members attended such a big event. If the event is organized on Saturday or Sunday, our faculty members have time to join. […]. On the other hand, we sent some faculty members and staff to attend training programs under the Ministry of Education's higher education improvement project." (UL05, 4th September 2015)

> […]. …, the university provides personnel with internal and external training opportunities. The internal training is organized by the university by inviting guest speakers or some experts in the related fields to update the personnel's knowledge. They have to update their knowledge every year. We will not be able to catch *new trends of social changes* [otherwise]. […]." (UL06, 27th August 2015)

The above-mentioned statements of the interviews revealed that in addition to the encouragement of key personnel to further their higher education in their expertise discipline, HEIs engaged them in training activities and academic meetings in sustainability-related disciplines. Some HEIs provided a partial scholarship support to personnel for furthering their higher education at their university. In another case, HEIs encouraged faculty members to further their higher education in foreign universities through scholarship opportunities.

Some HEIs created a culture of continuous development and training support for personnel. The activities for development of faculty members and other personnel included seminars, workshops, and training activities to increase awareness of environment and development issues. Few HEIs updated personnel's knowledge in response to trends of social changes and at least improve their knowledge about applying technology and social development depending on their roles in a university. To spread the obtain knowledge to more faculty members, few HEIs developed a culture of knowledge and experience sharing among faculty members after they had gain new knowledge and experiences from attending conferences and seminars. They revealed the MoEYS was the potential body to stimulate HEIs' involvement in campaigns to increase awareness of sustainable development.

The interviews with the key experts indicated that the MoEYS and involved ministries had a significant role in promoting awareness of Sustainable Development

Goals (SDGs) and Education for Sustainable Development (ESD) among university people. MoEYS should begin with national conferences regarding the ESD, which involve leaders and faculty members (KE01; KE02; KE04). At the institutional level, HEIs could integrate SDGs and ESD concepts into their vision. It was necessary that HEIs build the capacity of all people at the university including university leaders, faculty members, non-academic staff, students, and security guards up on their roles and responsibilities.

The expert suggested university leaders and faculty members have a high level of sustainable development literacy (KE01; KE02; KE04). One of the important themes should relate to the "self-efficiency" concept (KE02). Every individual should believe in the philosophy "building a sustainable society by taking some and leaving the rest to others" (KE03). This concept meant to be the promotion of value education by teaching people to learn how to live together. HEIs needed to have a policy and strategic plan for personnel development and quality education (KE01; KE02; KE03; KE04). To address a challenge on personnel motivation, MoEYS and HEIs should concern an improvement of financial support for faculty capacity building (KE01; KE02; KE04). The financial allocation was needed for the increase of salary and incentives for attending conferences and seminars.

1.3.2 Research

The interviews with 15 university leaders revealed that research areas in their HEIs paralleled their academic disciplines and were directed by donors. For example, the main focused of research at their university included "economic, business, and education" (UL01), "environment issues and community development" (UL04), "human capital in higher education" (UL05), "education quality, education equity, culture, and international relations (UL06), "employment impacts" (UL09), and "agriculture" (UL12). HEIs that worked on these academic disciplines appeared to be attractive to donors. They revealed:

> "[…]. We have conducted research related to industry-based curriculum development. We design our curriculum in response to the needs of industries or companies. We [have cooperated with] several institutions for the research. It mainly focuses on fields of economics & business and

> education, which link to the academic program in our university. […].” (UL01, 27th August 2015)

> “[…]. Research regarding sustainability issues is not much because our university’s research projects are few only. Usually, we have joint projects with the Ministry of Education. So, it depends on our partners’ directions and focuses. Then, we adjust our research projects to meet their needs. […]..” (UL05, 4th September 2015)

> “My university ever conducted research projects related to improvement of education quality and equity, culture, and international relations. Regarding these research projects, the university provides budget or allocate some budget to a project coordinator that comes from a management level. ….].” (UL06, 27th August 2015)

> “[…]. …, we had a research project on ‘employment impacts of the university’s graduates’ focusing on our students’ working performance in some selected companies. This project helps us know level of our students’ working quality, so we can identify what to improve. We have the 5-year vision and 10-year vision that our university has a plan to strengthen students’ capacity in terms of human resource quality to contribute to society development. […].” (UL09, 31st August 2015)

The interviews revealed that all of university leaders needed research the external support of research activities in terms of research grants. Nonetheless, only a few HEIs research received research grant ranged between 5,000 US Dollars and 100,000 US Dollars. Few university leaders revealed:

> “[…]. We have just completed a research project respecting human capital in higher education, with the Ministry of Education and the World Bank under a funding amount of one hundred thousand US dollars. […].” (UL05, 4th September 2015)

> “[…]. This year, the World Bank has offered the research budget about ninety-five percent. Also, we have got another one hundred percent funding project from the Ministry of Education. […].” (UL10, 9th August 2015)

> “[…]. Our university participated in a research project supported by the World Bank, with a value of eighty thousand US dollars. This project was to promote villagers’ living through growing crops and animals […].” (UL13, 8th August 2015)

The above-mentioned research projects appeared to be a sort of project-based research, supported by their development partners such as international agencies and foreign universities. Such research activities have been found at top ranking public HEIs.

Meanwhile, other few HEIs allocated own annual research budget ranged from 1,000.00 US Dollars to 10,000.00 US Dollars. Some university leaders said:

> "[…]. We have our research funds, but the research should be in the purpose of the university development. […], we have a Center for Research and Development, and we allocate an annual budget of fifty thousand US dollars to this center. […]." (UL09, 8th August 2015)

> "[…]. Our university has no external support for research activities. […] Our university has some budget under the management of our research institute up to ten thousand US dollars per year. Each college can propose research budget. […]." (UL05, 4th September 2015)

> "[…]. In each year, we can select only five projects from students. The value of each project should not exceed two hundred US dollars, and students shared the rest. […]." (UL14, 23rd September 2015)

There were considerable distinctions in research budgets at funded HEIs and non-funded HEIs. The funded HEIs could have a research budget (value) of a single project at least five times greater than the non-funded HEIs. Due to the shortage of own research budget allocation, most HEIs were missing the research initiatives.

A university leader suggested the MoEYS take a strong action to put the research promotion policy into practice by stating measurable indicators and motivating HEIs with a research award. The university leader said:

> "[…]. But most Cambodian HEIs ignore research, in fact. Within the last few years, the Ministry of Education push all HEIs to develop a research policy at own institution[…]. Research budget is the responsibility of own university. […]. But, I think the research policy depends on a will of HEIs, so it will not make significant change. […]. There should be a minimum requirement for research, which we can observe a measurement of the implementation. … at least 3 research projects per year or they have to allocate 5,000 US dollars per year. […]. I observed that over 10 years the Ministry had released several policies and strategies and there were no changes in research at higher education. […]." (UL02, 14th September, 2015)

The interviews with the key experts revealed the actions of promoting research activities regarding sustainability. First, they argued that the MoEYS work as a coordinator that can bring HEIs close together for exchanging research experiences. A suggested activity could be an annual seminar on challenges and resolutions to promote research in ESD. Second, there should be an improvement of researchers. HEIs needed sufficient researchers or full-time researchers. In the current situation, faculty members should get involved in professional research to enhance their research skills. Dealing with this matter, HEIs could learn a good practice from ITC. HEIs should develop a research team to become a group of consultants in various disciplines. Faculty members needed to learn to build research collaboration as a teamwork and to change their working attitude towards teaming. A motivation of researchers should relate to research recognition by providing academic credits, incentives, and awards for the best research of the year.

1.3.3 Curriculum and Instruction

Based on interviews with university leaders and faculty members, findings relating to curriculum development and instruction enhancement to promote sustainability are presented as below.

Curriculum Development to Promote Sustainability

University leaders revealed that sustainability-related courses had been integrated into curricula to increase students' awareness of various topics regarding environment, economic, and social aspects. Those courses included "Organizational Behaviors, Critical Thinking, Human and Society, Global Awareness, Development Studies, Khmer Culture, Buddhism Studies, Introduction to Environment, Climate Changes, and Personal Growth and Development". They expressed:

> "[…]. … we offer several courses including 'Organizational Behaviors', 'Critical Thinking' and 'Human and Society' to students in all Faculties." Also, the course related to professional codes of conduct is taught to students in common. … additional course 'Business Ethics' to those in the Faculty of Business and Economics. […]." (UL01, 27th August 2015)

> "[…]. The vision of our university is to develop human resources with

> social responsibility for promoting sustainability in the society. So, our academic programs and curriculum are designed to contribute to the development of the country under aspects of sustainable development. …in Foundation Year Program, all students are required to take the 'Global Awareness' course. […]. It discusses the relationship of economic development and environment issues. We stimulate our students to think about and care about our society. […]." (UL02, 14th September 2015)

> "[…]. …., since its establishment in 2003, our university has offered the degree in 'Development Studies' for Bachelor's and Master's program. In each academic year, we have about ten students enrolling in this program. […]. However, our university puts the elective course 'Development Studies' into the curriculum for almost all majors in each College. Sure, all students in the College of Social Science have to take the 'Development Studies' course'. Other elective courses related to environment, economic, health promotion and poverty reduction. …, our university agrees to use the 'Beyond the Growths' textbook for the relevant course. […]." (UL05, 4th September 2015)

> "[…]. In the Foundation Year Program, which we intend to train students' abilities to become citizens with high responsibilities, …. The courses include Khmer Culture, Buddhism Studies, Introduction to Environment, Introduction to Business, …. […]. For an academic program in tourism, we have the course about sustainable tourism. […]." (UL09, 31st August 2015)

> "[…]. We put the 3-credit basic course about 'Climate Change' into our current curriculum. It is the required course for students. University students have to understand and respond to environmental issues. We still have other three courses related to environment and sustainable development. We are considering how to put them into the curriculum as now there is no space for these courses. […]." (R13, 9th August 2015)

> "[…]. Currently our university has a degree program in tourism and hospitality. This program is designed for a contribution in promoting the sustainable tourism in communities. Besides its curriculum related to sustainable tourism, this academic program usually engages students in practice-based learning in local communities. […]. We need the tourism that could share benefits to local people, that is friendly to environment, and that stand still for long term. […]." (UL04, 20th August 2015)

A university leader indicated that his university required students in all disciplines to take some courses consisting of "Global Awareness, Personal Growth and Development, Morality, Philosophy of Buddhism, and Khmer Studies." The university leader expressed:

> "[…]. … relationship between development and environmental issues. … to assist students in preparing oneself for sustainable society and world. … in economic development discipline, we have 'Economic Development Rules' course. It is the required course for students from business and economic fields. …, regarding socio-cultural aspect, we have some courses like 'Khmer Studies, Cultural Anthropology, Morality, Philosophy of Buddhism, Gender Studies, and Personal Growth and Development', which require all students to take in their Bachelor's Program. […]. For post-graduate program, the course 'Good Governance and Leadership' is compulsory. As said above, sustainable development is a very broad concept. Our university is the part of it and is based on principle of Buddhism in providing educational services for 15 years. […]." (UL02, 14th September 2015)

However, some university leaders revealed that the challenges of curriculum development regarding sustainable development related to the lack of the involvement of relevant stakeholders including parents of students and industries (UL11); the shortage of resources (UL10). They said:

> "[…]. It can be a matter of curriculum development for our university. We are wondering if our curriculum matches the market needs. We recognize that the curriculum development is less involved by all key stakeholders. There is a lack of the involvement of students' parents and industry representatives. So, we still cannot identify what they need. A curriculum for sustainability should not exclude the voice of these stakeholders. […]." (UL11, 31st August 2015)

> "[…]. It is hard for our university to develop the curriculum to completely meet the international standards that are integrated with sustainability concepts. We develop the curriculum based on the real situation of our resources. So, the implementation of curriculum depends on the availability of the faculty members. […]. We input the necessary courses and employ part-time faculty members teach instead. […]." (UL10, 9th August 2015)

Integrating Sustainability Themes into Instruction

The interviews with the faculty members revealed that most faculty members mainly focused on issues in line with their particular disciplines, whereas some faculty members discussed social issues and environmental issues in their classes. For instance, faculty members from agriculture discipline were strongly interested in

"organic production, food security, biodiversity and natural resources, climate change, green business, and agriculture for community development" (FM01 and FM02). Those from engineering disciplines frequently debated "energy consumption, wind power, hydropower, electronic waste management, and learning to deal with conflict at a workplace" (FM011) and "building designs for promoting life quality" (FM12).

Noticeably, the topic on "poverty issues" was brought for discussion in agriculture, education, community development, and tourism disciplines (FM01, FM02, FM03, FM04, FM07, FM08, FM15, and FM16). Topics on "climate change resilience" were found in the community development, agriculture, and environment disciplines (FM01, FM02, FM03, FM04, FM05, and FM06). The business concepts were not only discussed in the business disciplines, but also found in classes from agriculture as "agribusiness" (FM01 and FM02), and information technology as "entrepreneurship opportunities for information technology" (FM13 and FM14).

Based on the interviews with the key experts, the curriculum and instruction in Cambodian higher education could be improved by building the capacity of university leaders and faculty members and involving relevant stakeholders. HEIs needed to reform their current curriculum by including ESD concepts into key elements of curriculum and update their curriculum in accordance with social changes. Significantly, HEIs should promote social responsibility concepts and value education in all academic programs. Most HEIs largely focused on the development of students' hard skills only. Thus, HEIs should design their curriculum to enhance students' soft skills—interpersonal, communication, problem-solving, and leadership as these skills could help students develop a better attitude in living and working towards sustainable development.

As there was a lack of resource persons in HEIs, the key experts suggested university leaders and faculty members have ESD experts as their supervisors to assist them in developing curriculum and designing instruction. Instead, they could learn from ESD experts through training before learning to develop an ESD curriculum by themselves through research at their university. Faculty members could integrate ESD concepts into their instruction by beginning to develop a habit of practicing simple principles of sustainable development in their classroom and on their campus. There

should be about learning to do it rather than learning to say it to promote sustainable development in everyday activities. Promoting extra-curricular activities meant the increase opportunities for student development in soft skills through learning to practice sustainable development concepts.

1.3.4 Partnership Development

The interviews with university leaders indicated that majority of Cambodian HEIs were more interested in building a partnership with foreign universities than other HEIs in the country. HEIs had built partnership foreign universities for collaboration on student exchange, faculty exchange, and joint research projects. Domestic HEIs appeared in a less collaboration on academic activities, but in more competition. Some university leaders revealed that:

> "[…]. We conduct MoU [Memorandum of Understanding] with various universities in ASEAN countries, America, Japan, and China. Most MoUs focus on student exchange program, faculty exchange program, joint research projects, library cooperation, and support of abroad student visit. But cooperation with domestic universities is so little. […]." (UL08, 26th August 2015)

> "[…]. For building partnership with abroad universities, we focus on knowledge and experience sharing through the presentation. This activity involves our university leaders such Deans and Office Directors, and our students. We visit our partnered universities in China, Malaysia, Singapore, and Thailand, and they also visit us. This activity increases students' learning opportunities about the learning culture and their field of study. For university leaders, we share knowledge and experience on higher education management. […]." (UL09, 8th August 2015)

However, the partnership among domestic HEIs happened to some of the public HEIs. Two university leaders revealed:

> "[…]. Recently, some things are changing. For instance, the Institute of Technology of Cambodia (ITC) opens an access of using its facilities and labs to students from other HEIs. […]. That is an art of sharing help. In our society, the culture of sharing goes down worryingly […]." (UL02, 14th September 2015)

> "[…] Our cooperation with foreign universities focuses on the capacity training of faculty members as well as a scholarship for faculty members

> to pursue Master's degree and Ph.D. With domestic universities, our university works on research projects regarding community development. Our university is a shortage of project developers. So, it is a great opportunity that we can learn to write a research project from high-qualified and experienced faculty members in other universities. […]." (UL13, 8th August 2015)

University leaders revealed that domestic HEIs had paid a little attention to collaboration between other HEIs in the country and held on the competition concept against each other. Nevertheless, few HEIs started to show an encouraging sign for opening the door to welcome other domestic HEIs. A university leader expressed:

> "[…] … there is a poor cooperation among domestic HEIs in the country although there is a good sign happening to few HEIs for getting closer together recently. First, probably, the domestic HEIs are assumed themselves at the poor quality, and they need to find the better [international] partners. Second, there is a strong competition regarding business aspect …. It seems that we regard each other as a competitor. If we can bring the domestic HEIs to work cooperatively, that is perfect. …., the group of private HEIs has been established as Cambodian Higher Education Association (CHEA) while the recently public HEIs create the Rector Forum. Even members of CHEA do not reveal good cooperation in academic affairs. […]." (UL02, 14th September 2015)

A challenge of bringing domestic HEIs to approach each other for collaboration on the academic affair related to a considerable distinction of education standards at HEIs. Some HEIs appeared at a high standard and kept moving toward internationalization. Other some HEIs approached the business concept as a profit-based company. A university leader said:

> "[…]. One of the big challenges is about the promotion of partnership among domestic universities. … partnership among either public universities or private universities was not clear and not helpful. Universities seem to compete for each other to attract students rather than to promote education quality for the country. First, some universities try to reduce tuition fee to around two hundred US dollars per year. […]. Second, the curriculum is different from one to another, so it is hard to do credits transfer. The third thing is about the language of instruction. Some universities use English as a medium of instruction, while most universities teach in Khmer. Last, we get failed in an initiative for building a good partnership. […] So, it becomes a question of how we can work together to promote sustainability if the current situation is like this.

[…].” (UL08, 26th August 2015)

Some university leaders indicated the needs for improvement of faculty capacity (UL01; UL13) and cooperation of domestic HEIs on academic resource exchanging (UL08). They revealed:

> “[…]. We recognize that capacity of our faculty members is very limited in both research skills and the English language. […]. Only a few faculty members at our university are qualified enough to work with national and international universities on research projects. […].” (UL13, 8th August 2015)

> “[…]. We [suggest] the Ministry of cation have more programs regarding research and capacity development of faculty members. It means to promote the network and to allocate research budget. Each university sends their representative and builds a network together for making a good move in human resource development. […].” (UL01, 27th August 2015)

> “[…]. We [need] a partnership that all domestic universities cooperate by providing assistance to each other based on their available resources. …, we can request for our students to use facilities such as a library and academic resources …. Otherwise, we can send our students to take coursework or to attend guest lectures. Moreover, there should be the exchange of faculty members to be a guest lecturer or guest speaker so that they can share important knowledge and experiences to students as well as faculty members in other universities. […].” (UL08, 26th August 2015)

HEIs appeared to have collaborated with the Council of Ministers, Ministry of Interior, Ministry of Economics and Finance (MEF), MoEYS, public hospitals, and upper secondary schools. This collaboration was about the development of university students’ knowledge and skills. Students from a university had a short visit at MoEYS and MEF for completing their assignment for the courses related education and economics respectively (UL01). Students from another university learned about the public administration at the Council of Ministers and the university invited officials from the Ministry of Interior to share knowledge on human trafficking issues (UL02). Few HEIs cooperated with provincial governmental authorities to conduct awareness campaigns on environmental issues (UL14 and UL15). Students had a practicum at public hospitals for improving their nursing skills (UL15). Few HEIs invited upper

secondary school students to the orientation program on the university's academic programs (UL08).

Cambodian HEIs approached international organizations for curriculum development and research development. A university cooperated with International Human Rights Law for its human rights curriculum development (UL02). Other HEIs built a partnership with the World Bank for research grants. Meanwhile, their collaboration with local NGOs emphasized the development of their students' practices. They revealed that they had approached local NGOs to promote students' practicum for few months (UL01and UL10), students' internship opportunities (UL15), students' research for writing thesis (UL13), students' volunteer in the local NGOs' education projects (UL02), and scholarship to poor students (UL04).

The majority of HEIs built cooperation with industries for seeking opportunities for students' practices. Their main activities included students' practicum at companies (UL01; UL10), students' internship to improve skills (UL03; UL05; UL06; UL08; UL14; UL15), and students' research study for conducting thesis (UL01; UL02; UL04; UL13). Few HEIs hosted a business plan contest sponsored by their partnered banks (UL02; UL08).

The key experts argued that the MoEYS have an important role as coordinator in promoting cooperation of domestic HEIs at all level. It should bring university leaders together to have a discussion on approaches they promote cooperation. A starting point for them to consider may relate to a culture of exchanging faculty members for instruction, thesis exams, and seminars. HEIs could promote the human network and build trust among partners and local communities. That was associated with the development of online collaboration and networking tools for social innovation and social connection.

The experts suggested HEIs increase Memorandum of Agreement (MoA) with a clear indication of activities and the number of activities to ensure that the cooperation between HEIs and their partners can result in more practices. Meanwhile, they should understand needs of their partners to identify how they could exchange assistance with their partners. Dealing with a promotion of education for sustainable development, HEIs could learn best practices from the Center for Community Studies

at the Department of Non-Formal Education of the MoEYS. Additionally, HEIs could approach the NGO Education Partnership (NEP) since NEP had many local NGOs in all provinces that focused on education for sustainable development.

1.3.5 Community Involvement

The interviews with the university leaders revealed that students from most HEIs involved in activities related to the environment. University leaders said that their students participated in field trips to local community (UL01, UL02, UL03, UL05, UL06, UL07, UL10, and UL15), awareness campaign on environment nearby university campus (UL01, UL03, UL05, UL14), and fundraising to help orphan children and poor students (UL05 and UL09). A university leader expressed:

> "[…]. For involving in community activities, our students participate in campaigns related to the environment, drug abuse, and humanitarian. Our students join the community activities with Cambodian Red Cross, Battambang Provincial Hall, and other Provincial Departments. There is no clear plan of these activities. It is flexible. Once we receive the requests from the partners, we arrange our students to assist them. Our university's participation in social activities in the town of the province such as cleaning the city and traffic rule campaign is the most active if compared to other universities in this province. In an average, we have between 10 and 20 activities and approximately 100 students attending each activity. Also, we concern that these activities disturb their study time. […]." (UL14, 23rd September 2015).

For the involvement of most HEIs in local communities, students appeared to be the key participants and responsible for developing activities (UL01, UL02, UL03, UL04, UL05, UL09, UL13, and UL14). Two of the university leaders said:

> "[…]. We are having a strategic plan for students' community programs. We are considering how to develop a program about community service. That is to build students' spirit to love local communities. The more our students love local communities, the more possibility of sustainability happens. We want to make those who study in business discipline knowledgeable about local communities. What's more, those who are in the construction engineering discipline have to understand negative impacts on the environment. […]" (UL01, 27th August 2015).

> "[…]. As a principle, our university is considering a vision … a target plan in 2023. In this plan, … to integrate sustainable development

> concepts into their academic program and their extra-curricular activities by linking to communities. We promote roles of current student senate in building a student structure to involve in community activities. […]." (UL05, 4th September 2015)

A university leader revealed that the university prepared students before getting them involved in education activities for villagers. The university leaders expressed:

> […] our students to share knowledge with people in local communities. We do not determine the number of people as the target. However, we consider on targeted places depending on villagers' needs. […] we train our students first and then put them into the team under the supervision of faculty members or advisor. The university can support this project with a little budget, and the student team shares the rest amount of research expenses. In agriculture field, students share agricultural technical knowledge to the villagers in growing crops so that they can promote their living. Students from the law major share knowledge related to rights, behaviors, and responsibilities in the society. […] (UL15, 23rd September 2015).

Remarkably, very few HEIs have engaged their students in local communities through their regular program called "Community Service Learning (CSL)." This program brings students to get close to villagers. In each semester, approximately 50 students from the University A volunteered as teachers and social workers to work in some nearby orphan centers and non-governmental organizations, which their activities focuses on education for the poor and environmental education. The university had joint projects with local NGOs by assigning those volunteer students to work in the projects. This activity apparently has a clear schedule and program, which would assist many villagers indeed in a medium term. The University A introduced the CSL program to new students at the beginning of each academic year. Additionally, the university worked with its lecturers in each college to advise the interested students in developing a small project. A university leader explained:

> "[…]. In the community service learning program at our university, we focus on our students' activities in contribution to communities. The missions of the program are to provide services to communities by pure volunteer and to learn from communities. […] Often students in the Foundation Year [first year] are encouraged to team up with at least four

> people to volunteer in promoting education in a community. Each team is supervised by their lecturer in a particular course. The themes of the programs can be various from year to year depending on the interests of our students and of our partnered NGOs. The students are expected to teach Khmer culture, Khmer language, English language, basic computer, child rights, personal sanitation, and traffic rules. […] In some cases, students involve with a community development project of NGOs. They work as research assistants in conducting a survey research and needs assessment. […]." (UL03, 16th September 2015)

Likewise, CLS program at University B emphasizes students' involvement in the university's community development projects. Those projects were funded by international donors and related to "community-based conservation", "partnership for environmental action and community empowerment", "harmonizing nature and human society for sustainable development", and "urban climate resilience". In the project-based research, the university created research teams by choosing faculty members who worked in the relevant disciplines. Few students were recruited to be research assistants in each research team. Students mainly worked during data collection and fieldwork activities of the projects in local communities. This volunteer work may help students to learn grounded knowledge on community development as well as sustainability in local communities. Even so, many students seem to miss opportunities to get involved because the number of selected students is very limited. A university leader stated:

> "[…]. Community service learning is the heart of our university. The university has a Community Service Learning Program and the program assists students to engage in voluntary programs and to build a close relationship with villagers. […] We are sure that our students are attached to social responsibility concepts so that they can contribute to the society responsibly. Although they may not fully understand sustainability concepts, they may consider causes and effects in doing business. They are taught … to care for environment and society. […]." (UL02, 14th September 2015)

The community service learning program at University A appeared to be more comprehensive than that at University B in term of students' engagement. However, the program at University B included more research projects related to community development as well as environmental conservation. At least, both HEIs played their

important role in initiating the volunteer program for students to learn about the society.

Summary of the Key Research Findings

The major research findings are summarized into five main parts including key personnel, research, curriculum and instruction, partnership development, and community involvement.

Key Personnel

The improvement of key personnel's qualification and capacity to promote sustainability in higher education was needed. Five research findings were suggested. First, Cambodian higher education institutions demanded the higher academic qualification of more university leaders and faculty members with a PhD. Of 11,362 higher education personnel, only 7.36 percent were the PhD academics, with an average growth rate at 1.28 percent. Second, HEIs needed university leaders and faculty members with the capacity for Education for Sustainable Development. 83 percent revealed the need of sustainability-related knowledge while some HEIs organized academic meetings related to the environment and development issues. Third, HEIs appeared to lack the capacity building activities. While there were a few of capacity building activities at both national and institutional level, the themes of the activities appeared to lack of the diversities of sustainability-related topics. The majority of university leaders and faculty members appeared to be absent from capacity building opportunities.

Fourth, the motivation of university leaders and faculty members to participate in the capacity building activities for ESD related to incentives and professional ranking. HEIs had insufficient financial resources to support their university leaders and faculty members for attending continuous training activities and academic meetings regarding sustainability. Fifth, there appeared to be a need for the involvement of MoEYS and HEIs in stimulating and building the capacity of university leaders and faculty members to increase sustainability-related knowledge. HEIs needed to emphasize their policy and strategic plan to integrate the sustainability concepts into the higher education system.

Research

The sustainability research in Cambodian HEIs appeared to be a shortage and to need promoting. Five major research findings were briefly illustrated. First, the majority of HEIs had a little concern about the research activities. HEIs appeared to be an instruction-based university/institute, which focused mainly on coursework. Research activities were just optional for HEIs. Only a few HEIs had involved in research activities. Second, research focuses at some HEIs appeared to be restricted to a few disciplines. Their research disciplines largely related to the environment, agriculture, and community development and were adjusted upon donors' interests. HEIs needed a clear vision and policy regarding research about sustainability as own institution's initiative.

Third, HEIs appeared to dependence on research grants from international governments or organizations, and joint research collaboration with non-governmental organizations and other foreign universities. A few HEIs had received research grants from donors while most HEIs had not because of the limited research capacity. Fourth, the majority of faculty members had not gain opportunities to involve in research. Among those who had the research opportunity, faculty members conducted only one research within the last five years. They indicated the needs for research capacity development regarding research skills and sustainability research advancement. Fifth, there appeared to be a lack of motivation mechanism to promote faculty engagement in sustainability research. HEIs had yet valued faculty members' research outputs to persuade them to keep an effort for a research award, a professional rank, and incentives.

Curriculum and Instruction

Regarding the promotion of sustainability through curriculum and instruction in Cambodian higher education, five key findings were observed. First, academic programs at HEIs related largely to the business and economic disciplines. A few HEIs focused their academic programs on environment and community development areas. Second, higher education curriculum in most disciplines appeared to exclude interdisciplinary courses. A few HEIs had designed their curriculum to increase

learning opportunities regarding sustainability-related knowledge for students in all disciplines.

Third, there was an apparently little initiative of HEIs on extra-curricular activities regarding the development of students' soft skills and the increase of students' awareness of sustainability. The majority of students had not engaged in any extra-curricular activity. Fourth, the majority of faculty members appeared to lecture courses in line with their particular disciplines with a little integration of interdisciplinary topics. To most of faculty members, the topics of their debate on teaching moderately related to social development aspect and slightly relate to environmental and economic development aspects. Fifth, faculty members appeared to have a limited capacity for enhancing the design of teaching and learning process regarding the Education for Sustainable Development.

Partnership Development

In partnership development, there were five major findings. First, Cambodian higher education institutions appeared to approach foreign universities and other stakeholders more than other local HEIs. Most HEIs built a partnership with universities in ASEAN countries and Asia for academic cooperation, while a few HEIs did with universities in Europe and Australia. Meanwhile, they appeared to be a competitor in gaining student quantity, and not to promote the academic cooperation. Second, HEIs apparently were more dependent for establishing a partnership with international governments, Cambodian governmental institutions, non-governmental organizations, and the private sector. They revealed the needs for academic assistance from partners more than they indicated their capacity to assist partners in staff's capacity building regarding sustainability.

Third, the research cooperation happened to their partnership of a few HEIs with foreign universities, international governments or organizations, and Cambodian governmental institutions (through the Ministry of Education, Youth, and Sports). With foreign universities, Cambodian HEIs collaborated on joint-research projects. They had project-based research granted by the international donors. Most of the funded research projects related to environmental issues, sustainable development,

agricultural education, and community development. Fourth, HEIs promoted the cooperation on improvement of students' practice-based learning with various Cambodian institutions, non-governmental organizations, and businesses/industries. HEIs approached them for gaining opportunities for students' internship, practicum, and thesis research. Fifth, the cooperation on building public awareness and community development projects appeared to take place at a few HEIs with international governments or organizations and the private sector.

Community Involvement

There were five key findings regarding the community involvement of higher education institutions in Cambodia. First, Cambodian higher education institutions appeared to rely on the student involvement in community activities. Students had become key active participants in attending and developing public awareness campaign activities and community outreach activities to share knowledge with local community people. Most of those activities were concerning areas of the environment, health care, and education. Second, a few students had participated in community activities. They appeared to be interested in themes relating to human rights, gender equality, poverty reduction, waste and pollution, and career development.

Third, faculty members' involvement in local community activities appeared to be low in general. A few faculty members had conducted projects regarding community development and supervised students in developing small-scaled projects in community service learning program. Fourth, HEIs appeared to have a little initiative for developing activities in local communities. The majority of HEIs had their students joined social activities and environmental awareness campaigns, which were organized by their partners. However, they engaged their students in annual one-day fieldtrips to learn from local communities. Fifth, a few HEIs developed a community service learning program with a clear framework to engage their students in voluntary activities for a semester/term. Still, a few students were motivated to attend the program.

2. Developing the Educational Policy Alternatives for Capacity Building of Cambodian Higher Education Institutions to Promote Sustainability

The development of the educational policy alternatives took two stages: the draft of educational policy alternatives based on research findings and existing policies, and the focus group discussion to improve the draft of the educational policy alternatives.

2.1 Drafting the Educational Policy Alternatives

The development of educational policy alternatives was based on incremental policy making model. The draft of the policy alternatives was developed by identifying problems in agenda setting, considering existing policies, and formulating statements of the educational policy alternatives.

2.1.1 Agenda Setting

The development agenda for the post-2015, globally, is transformed to Sustainable Development Goals (SDGs). Countries need to mainstream their development pathway towards long-term development by caring for economic growth, natural resources, and social development. Achieving SDGs requires high levels of awareness and participation among stakeholders from all sectors and all individuals. The word ‘sustainable development/sustainability’ has sometimes been talked in national meetings of the Royal Government of Cambodia and on media such as newspapers, radios, and televisions in Cambodia for years. Although Cambodia has launched the “National Sustainable Development Strategy for Cambodia” since 2009, the public awareness and participation concerning sustainability in practical approaches seem to be limited.

Higher education institutions have a crucial role in sustainability knowledge generating and sharing to promote graduates’ and people’s awareness and participation. Presumably, Cambodian HEIs need to get started with sustainability initiative, at the beginning stage, and to have a master direction that enables them to have a better capacity for promoting the Education for Sustainable Development (ESD).

An educational approach of the ESD relates to the "Sustainable Self," comprising of "awareness, motivation, empowerment, knowledge, skillful means, and practices" (Murray, 2011). The sustainable self begins with the awareness of sustainability concepts. Then, people are motivated and empowered to change their beliefs and attitudes. They continue to gain a deep understanding of sustainable development principles and to acquire skillful means with the key competence in sustainability. Finally, they become ready to take personal action to behave in responsible and sustainable manner towards the surrounding environment.

HEIs need to build their capacity for enhancing their human resources, research, curriculum and instruction, higher education partnership, and community involvement towards the sustainable self. They could start to build their key personnel's capacity to ensure that the key personnel can develop sustainability knowledge through scientific research and share sustainability knowledge through curriculum and instruction. Then, they need to cooperate with stakeholders to advance the research and the curriculum and to involve in building public awareness of sustainability and community development activities. Finally, they take actions to make sure that their students have learnt to transform to become the "sustainable self-oriented graduates."

The current research findings suggested that the Ministry of Education, Youth, and Sport (MoEYS) have the key role to supervise and motivate HEIs to develop their capacity for the ESD. The major research findings for capacity building of higher education for key personnel, research, curriculum and instruction, partnership development, and community involvement were captured towards the promotion of the sustainable self.

First, the capacity building of HEIs for key personnel focused on the promotion of their awareness of sustainability and the sustainable self concepts. HEIs appeared to support their key personnel with opportunities for gaining a higher academic qualification and attending activities to develop their knowledge regarding the ESD. While developing capacity building activities relating to sustainability, HEIs need to motivate their key personnel to get involved. The initiative of HEIs and

MoEYS to step in mobilizing sustainability concepts and assigning higher education personnel should come first.

Second, the capacity building of HEIs for research emphasized the enhancement of sustainability knowledge through scientific research. HEIs appeared to need to promote research activities and research disciplines concerning sustainability, to enrich financial resources for research support, to develop research capacity of faculty members, and to motivate them to involve in research activities.

Third, the capacity building of HEIs for curriculum and instruction concentrated on the engagement of university students in the sustainable self-based learning while key personnel practice of promoting the sustainable self concept. HEIs appeared to need to promote their academic programs in more various disciplines regarding sustainability, interdisciplinary courses in each curriculum, extra-curricular activities and sustainability-integrated instruction. At the same time, their faculty members needed to have capacity for applying the ESD into their teaching courses. Students should learn to increase their awareness, motivation, empowerment, knowledge, skills, and practice of sustainable lifestyle.

Fourth, the capacity building of HEIs for partnership development focused on the increase of sustainability knowledge, skills, and practices of both university people and partners' staff. HEIs appeared to need to promote partnership with local HEIs for academic cooperation and cooperation with the Cambodian government, international governments or organizations, non-governmental organizations, and business/industries on research development, student capacity development, and building public awareness of sustainability as well as the sustainable self. At the same time, HEIs should share the knowledge and experiences of the sustainable self with their partners.

Fifth, the capacity building of HEIs for community involvement emphasized the enhancement of sustainability awareness, motivation, empowerment, knowledge, skills, and practices of both local community people and university people. HEIs appeared to need to increase students' involvement, faculty members' involvement, and activities for raising local community people's awareness. For a long-term

community involvement of HEIs, they should develop a community service learning program for their students to learn and practice voluntarism and social responsibility.

2.1.2 Existing Policies

There was a policy regarding public awareness raising through National Forum on Sustainable Development in the National Sustainable Development Strategy for Cambodia. The National Forum could preferably be divided into various sub-forums focusing on specific SD issues such as poverty reduction, sustainable energy development, sustainable agriculture, education and public awareness and local sustainable development, etc. (National Sustainable Development Strategy for Cambodia, p. 46)

In research development, there were four policies. (1) Ensure that academic staff and students, especially postgraduates, contribute to improving the research and development culture in Cambodia to serve national development needs (Policy on Higher Education Vision 2030, p.4); (2) Improve the quality of research at higher education (Education Strategic Plan 2014-2018, p.36); (3) Capacity development program: HEIs upgrade their lecturers' qualifications; (4) Improve salary structure of HEIs to ensure sufficient support for qualified teachers to work at the HEIs (Education Strategic Plan 2014-2018, p.38)

The policies regarding curriculum development in higher education conisisted: (1) Ensure that all graduates are equipped with knowledge and skills that allow them to contribute fully to national development in a rapidly changing environment; (2) Ensure that all program development should include critical thinking, analytical and leadership skills (Policy on Higher Education Vision 2030, p.4); (3) Prepare guidelines on curriculum development in 2016 (Education Strategic Plan 2014-2018, p.36).

The policies relating to the promotion of teaching and learning in high edcuation include: (1) Improve the quality of learning and teaching at higher education (Ed Strategic Plan 2014-2018, p.36); (2) Improving teaching and learning program: introduce creative pedagogy for learning and teaching through research and

modernization of learning materials including classrooms, laboratories, and libraries (Education Strategic Plan 2014-2018, p.38)

The policies concernng the development of higher edcucation partnership development focused on (1) the cooperation of HEIs with other local HEIs and international HEIs through exchange experiences, students, professors, researchers, and programs (Education Strategic Plan 2014-2018, p.39); (2) Ensure that relevant ministries and agencies coordinate and collaborate to maximize the impact of HE on Cambodia's economic, industrial, commercial, agricultural, social and cultural development (Policy on Higher Education Vision 2030, p.4).

Higher education policies regarding financial resources included (1) Ensure that all programs are developed in conjunction with analysis of national training provision and skill needs; (2) Strengthen planning, financing, monitoring, review and reporting systems in higher education (Policy on Higher Education Vision 2030, p.4); (3) Prepare policy on governance and financial management at higher education in 2016 (Education Strategic Plan 2014-2018, p.36).

The current policies for promoting academic resources in higher education focused on (1) Prepare an operational manual for Library Management by 2014 (Education Strategic Plan 2014-2018, p.36); (2) Physical infrastructure development: improve the physical infrastructure of HEIs including facility equipment, laboratory and library installment to support learning, teaching, and research activities (Education Strategic Plan 2014-2018, p.39).

2.1.3 Policy Formulation

After applying the incremental policy making model, 12 education policy alternatives were drafted by considering the existing policies and the current research findings regarding the capacity building of higher education institutions to promote sustainability. The draft of educational policy alternatives was presented as the following.

Policy Alternative 1: Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainability (EfS) among stakeholders.

Policy Alternative 2: Promote awareness of and participation in practical concepts of sustainability and education for sustainability towards the sustainable self among HEIs and their university people.

Policy Alternative 3: Enhance research related to sustainability and education for sustainability.

Policy Alternative 4: Ensure that HEIs' curriculum is integrated with concepts of sustainability and the sustainable self.

Policy Alternative 5: Enhance sustainability-based and sustainable self-based instruction at HEIs in all academic programs.

Policy Alternative 6: Enhance higher education partnership among domestic HEIs to promote sustainability and the sustainable self.

Policy Alternative 7: Enhance partnership with NGOs and private sector to promote sustainability and the sustainable self across the country.

Policy Alternative 8: Promote community service learning and community development activities for students at HEIs.

Policy Alternative 9: Enrich financial resources for HEIs to utilize in capacity building and in other activities for promoting sustainability and the sustainable self at HEIs.

Policy Alternative 10: Enrich academic resources related to sustainability and physical infrastructure and provide wide access among faculty members and students from various HEIs.

Theses educational policy alternatives were elaborated in details with the highlight of key research findings and existing policies of the Ministry of Education, Youth, and Sport and the Royal Government of Cambodia as follows.

Educational Policy Alternative 1

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
Public awareness and participation concerning sustainability in practical approaches are seemingly to be very limited. The challenge lied in the mobilization of sustainability concepts (simple and practical ones) to the public. Majority of university students revealed they learnt sustainability-related topics from mass media better than classes at their HEIs. Mass media appeared to have potential in building public awareness. A few HEIs had designed their curriculum to increase learning opportunities regarding sustainability-related knowledge for students in all disciplines.	Promote public awareness through sustainable development through National Forum on Sustainable Development: focusing on specific SD issues such as poverty reduction, sustainable energy development, sustainable agriculture, education and public awareness and local sustainable development, etc. (National Sustainable Development Strategy for Cambodia, p. 46)	*Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainability (EfS) among stakeholders.* 1. Conduct campaigns to raise public awareness on SDGs and EfS. 2. Mobilize sustainability concepts to the public through mass media and social media.	

Educational Policy Alternative 2

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
At national level, from 2012 to 2014, themes of training, workshop, seminars and forums were significantly associated with research, teaching, and management in higher education. At an institutional level, some universities provided their faculty members and staff with training courses concerning with energy consumption, climate change, and environment. HEIs needed university leaders and faculty members with the capacity for Education for Sustainable Development. HEIs appeared to lack the capacity building activities. While there were a few of capacity building activities at both national and institutional level, the themes of the activities appeared to lack of the diversities of sustainability-related topics.	Prepare a policy on human resource development at higher education in 2015 (Education Strategic Plan 2014-2018, p.35) Public Policy Development Program: Establish an annual higher education forum (Education Strategic Plan 2014-2018, p.36)	*Promote awareness of and participation in practical concepts of sustainability and education for sustainability towards the sustainable self among HEIs and their university people.* 1. Align HEIs' vision, policies, and strategies with concepts and principles of sustainability and education for sustainability. 2. Develop capacity of core personnel including university leaders and faculty members in sustainability and education for sustainability through trainings, conferences, seminars, and academic meetings. 3. Increase awareness and develop knowledge, skills, and attitudes among all people on university campus (university leaders, faculty members, administrative staff, other non-academic staff, and students) through campaigns and trainings.	

Educational Policy Alternative 3

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
The majority of HEIs had a little concern on the research activities. HEIs appeared to be an instruction-based university/institute, which focused mainly on coursework. HEIs appeared to dependence on research grants from international governments or organizations, and joint-research collaboration with non-governmental organizations and other foreign universities. The most of their focused research projects are dealing with modern technology, poverty reduction, and economic growth, whereas the least concentration is related to culture of peace and production and profit. Approximately 90 percent of university leaders and about 80 percent of faculty members have agreed that their universities need to conduct research relevant sustainability, and to seek assistance on research grants.	Ensure that academic staff and students, especially postgraduates, contribute to improving the research and development culture in Cambodia to serve national development needs (Policy on Higher Education Vision 2030, p.4). Policy action: Improve the quality of research at higher education (Education Strategic Plan 2014-2018, p.36) Capacity development program: HEIs upgradate their lecturers' qualifications. Improve salary structure of HEIs to ensure sufficient support for qualified teachers to work at the HEIs (Education Strategic Plan 2014-2018, p.38)	*Enhance research related to sustainability and education for sustainability.* 1. Build cooperation and network among all HEIs to gain opportunities for learning from each other for research development. 2. Establish a research center for addressing sustainability issues and determine a minimum number of research projects annually in its research policy. 3. Form a research team or research group for each HEI and make sure that team members are from various disciplines or from different faculties/colleges to promote interdisciplinary research. 4. Increase capacity and motivation of faculty members to involve in research related to sustainability and education for sustainability by providing awards and professional ranking and by increasing salary and incentives.	

Educational Policy Alternative 4

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
Academic programs at HEIs related largely to the business and economic disciplines. A few HEIs focused their academic programs on environment and community development areas. Higher education curriculum in most disciplines appeared to exclude interdisciplinary courses. The major challenges of promoting sustainability through curriculum and instruction relate to the integration and mobilizing approaches of sustainability and education for sustainability concepts. The largest percentage of both university leaders (91.57 %) and faculty members (84.09 %) reveals that extra-curricular activities were necessary for their universities to pay a great attention.	Ensure that all graduates are equipped with knowledge and skills that allow them to contribute fully to national development in a rapidly changing environment; HEIs will ensure that all program development should include critical thinking, analytical and leadership skills. (Policy on Higher Education Vision 2030, p.4). Prepare guidelines on curriculum development in 2016 (Education Strategic Plan 2014-2018, p.36)	*Ensure that HEIs' curriculum is integrated with concepts of sustainability and the sustainable self.* 1. Develop curriculum based on action research and needs of multi-stakeholders such as companies/industries, civil society organizations, and parents of students to find ways of promoting students' awareness and motivation and including new knowledge related to sustainability. 2. Enrich curriculum with interdisciplinary, sustainability competencies, value education, and soft skills to sure that the curriculum help to increase students' awareness and motivation, to empower students, to develop their knowledge and skills, to take a personal action toward the sustainable self. 3. Increase extra-curricular activities relevant to awareness and practice on sustainability by increasing students' knowledge, shaping their skills, and encouraging them to take a personal action towards the sustainable self.	

Educational Policy Alternative 5

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
The majority of faculty members appeared to lecture courses in line with their particular disciplines with a little integration of interdisciplinary topics. To most of faculty members, the topics of their debate on teaching moderately related to social development aspect and slightly relate to environmental and economic development aspects. Faculty members appeared to have a limited capacity for enhancing the design of teaching and learning process regarding the Education for Sustainable Development. High levels of faculty members' awareness on education for sustainability and eco-pedagogy appear to be needed before teaching. At least approximately 70 percent of both university leaders and faculty members agree that advancement of current teaching at their universities needs to be more relevant to sustainability	Policy action: Improve the quality of learning and teaching at higher education (Education Strategic Plan 2014-2018, p.36) Improving teaching and learning program: introduce creative pedagogy for learning and teaching through research and modernization of learning materials including classrooms, laboratories and libraries (Education Strategic Plan 2014-2018, p.38)	*Enhance sustainability-based and sustainable self-based instruction at HEIs in all academic programs.* 1. Develop and apply eco-pedagogy to instruction by consulting experts in education for sustainability. 2. Apply the sustainable self approach to instruction to promote students' awareness, motivation, empowerment, knowledge, skills, and practice in a responsible manner. 3. Stimulate everyday activities for the sustainable self and develop students' habits to learn to behave from simple personal actions. 4. Promote assignment related to project-based or problem-based learning by bring issues in communities to classes for stimulating resolutions.	

Educational Policy Alternative 6

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
Most Cambodian higher education institutions appeared to seek a collaboration with abroad universities over joint research project, joint academic program, joint training programs, an exchange of researchers, faculty members and students. They appeared to be a competitor in gaining student quantity, and not to promote the academic cooperation among domestic HEIs.	In and out country cooperation: through exchange experiences, students, professors, researchers, and programs (Education Strategic Plan 2014-2018, p.39)	*Enhance higher education partnership among domestic HEIs to promote sustainability and the sustainable self.* 1. Stimulate collaboration among all domestic HEIs by engaging them in dialogues or meetings. 2. Build collaboration among HEIs on conferences, academic programs, and research by exchanging faculty members or other resource persons and by joint programs to promote sustainability and the sustainable self. 3. Develop a network or a mechanism to allow communication among all levels including university leader, faculty member, and student levels by increasing Memorandum of Agreement (MoA) to share information and knowledge related to sustainability.	

Educational Policy Alternative 7

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
The research cooperation happened to their partnership of a few HEIs with foreign universities, international governments or organizations, and Cambodian governmental institutions (through the Ministry of Education, Youth, and Sports). With foreign universities, Cambodian HEIs collaborated on joint-research projects. They had project-based research granted by the international donors. HEIs promoted the cooperation on improvement of students' practice-based learning with various Cambodian institutions, non-governmental organizations, and businesses/industries.	Ensure that relevant ministries and agencies coordinate and collaborate to maximize the impact of HE on Cambodia's economic, industrial, commercial, agricultural, social and cultural development (Policy on Higher Education Vision 2030, p.4). Strengthening cooperation of academic institutions with public and private sectors to promote quality of education. (Policy on Higher Education Vision 2030, p.5).	*Enhance partnership with NGOs and private sector to promote sustainability and the sustainable self across the country.* 1. Strengthen capacity of faculty members in research development so that they are able to build trust to NGOs and companies/industries in terms of research related to sustainability. 2. Identify needs of NGOs and companies/industries to find ways to engage them in projects related to sustainability and the sustainable self. 3. Build cooperation with NGOs and companies/industries on activities related to sustainability and the sustainable self by increasing Memorandum of Agreement (MoA) and translating it into practice. 4. Extend approaches to existing strong network of NGOs like NGO Education Partnership (NEP) and NGO Forum to cooperatively work on the sustainable self/education for sustainability at ground levels across the country.	

Educational Policy Alternative 8

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
HEIs promoted the cooperation on improvement of students' practice-based learning with various Cambodian institutions, non-governmental organizations, and businesses/industries. HEIs approached them for gaining opportunities for students' internship, practicum, and thesis research. The cooperation on building public awareness and community development projects appeared to take place at a few HEIs with international governments or organizations and the private sector. Few higher education institutions appeared their partnership with private sector for joint research projects associated with environment issues. Other few HEIs collaborated with companies over research activities related to food fermentation, water treatment, solid waste management, and air quality.	Strengthening cooperation of academic institutions with public and private sectors to promote quality of education. (Policy on Higher Education Vision 2030, p.5).	*Enhance partnership with NGOs and private sector to promote sustainability and the sustainable self across the country.* 1. Strengthen capacity of faculty members in research development so that they are able to build trust to NGOs and companies/industries in terms of research related to sustainability. 2. Identify needs of NGOs and companies/industries to find ways to engage them in projects related to sustainability and the sustainable self. 3. Build cooperation with NGOs and companies/industries on activities related to sustainability and the sustainable self by increasing Memorandum of Agreement (MoA) and translating it into practice. 4. Extend approaches to existing strong network of NGOs like NGO Education Partnership (NEP) and NGO Forum to cooperatively work on the sustainable self/education for sustainability at ground levels across the country.	

Educational Policy Alternative 9

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
Cambodian higher education institutions appeared to rely on the student involvement in community activities. Students had become key active participants in attending and developing public awareness campaign activities and community outreach activities to share knowledge with local community people. However, a few students had participated in community activities. HEIs appeared to have a little initiative for developing activities in local communities. The majority of HEIs had their students joined social activities and environmental awareness campaigns, which were organized by their partners. However, they engaged their students in annual one-day fieldtrips to learn from local communities. A few HEIs developed a community service learning program with a clear framework to engage their students in voluntary activities for a semester/term. Still, a few students were motivated to attend the program.	Promote partnership of academic institutions with local communities to promote education quality (Education Strategic Plan 2014-2018, p.40)	*Promote community service learning and community development activities for at HEIs.* 1. Maximize voluntary programs related to sustainability for students so that HEIs have more opportunities to develop students' spirit and mindset in learning to make contribution for the society. 2. Engage faculty members in community service learning so that they can direct students on assignments or projects related to community development. 3. Provide supports or capacity building to students on community development activities or community service learning that so they are capable to mobilize sustainability concepts to people in local communities. 4. Encourage the existing group of students like student association, student senate, or student council at HEIs to involve in activities related to sustainability.	

Educational Policy Alternative 10

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
In addition to demanding more research funding and further knowledge related to research development, faculty members need more academic resources to motivate them to conduct research. HEIs appeared to be shortage of up-to-date academic resources (books and journals).	Policy action: Prepare operational manual for Library Management by 2014 (Education Strategic Plan 2014-2018, p.36) Physical infrastructure development: improve physical infrastructure of HEIs including facility equipment, laboratory and library installment to support learning, teaching, and research activities (Education Strategic Plan 2014-2018, p.39).	*Enrich academic resources for promoting sustainability and the sustainable self at HEIs.* 1. Develop an inter-library system among HEIs and partners so that faculty members and students can have wider access to information on books, journals, reports, and other documents through database system and they are allowed to borrow those documents across HEIs. 2. Increase research activities for faculty members and students and file collection of research articles. 3. Subscribe both paper-based and electronic sources such as books, journals, and relevant documents.	

Educational Policy Alternative 11

Research Findings	Existing Policies	Draft of the Educational Policy Alternative	Comments
HEIs appeared to be shortage of financial resources to promote research activities. HEIs apparently were more dependent for establishing a partnership with international governments, Cambodian governmental institutions, non-governmental organizations, and the private sector. They revealed the needs for academic assistance from partners more than they indicated their capacity to assist partners in staff's capacity building regarding sustainability. At least 72 percent of university leaders and faculty members said their HEI needed technical assistance and sponsorship from partners.	Ensure that all programs are developed in conjunction with analysis of national training provision and skill needs; Strengthen planning, financing, monitoring, review and reporting systems in higher education (Policy on Higher Education Vision 2030, p.4). Policy action: Prepare policy on governance and financial management at higher education in 2016 (Education Strategic Plan 2014-2018, p.36).	*Enrich financial resources for promoting sustainability and the sustainable self at HEIs.* 1. Maintain existing sources of finance from school fees and be accountable for using the existing finance effectively. 2. Strengthen research capacity to attract research funding from development partners and companies/industries. 3. Increase service providing such as professional training, consulting, and catering to communities. 4. Conduct research to develop innovative ideas for new products to supply manufacturers and business institutions. 5. Establish alumni group and engage the alumni group in contribution for their university development; for instance, HEIs conduct fundraising from their alumni for increase their activities related to public awareness on the sustainable self.	

2.2 Focus Group Discussion

The improvement of the educational policy alternatives was based on comments and suggestions of the experts in the focus group discussion. Most of the educational policy alternatives were supported and appreciated by the experts. Some educational policy alternatives needed revising. For instance, the policy alternative 8 "Enhance partnership with NGOs and private sector to promote sustainability and the sustainable self across the country" was suggested it distinguish the role of NGOs and private sector.

The comments and suggests of the focus group discussion were summarized as the following. First, the concepts of sustainable development, education for sustainable development, and the sustainable self concept needed elaborating. If possible, there should be a consideration on how to internalize the concepts of sustainable development in Cambodian context.

Second, there should be an emphasis on themes of sustainable development in higher education research and curriculum such as tourism, urbanization, creative industries, and agriculture. Corporate Social Responsibility (CSR) and Creating Shared Values (CSV) can be promoted through academic programs, instruction, and extra-curricular activities. HEIs should also emphasize the cultural and sports activities to provide opportunities for students to learn to live together.

Third, guidelines or approaches to teaching the sustainable self in higher education needed to be clearly stated. Also, some activities regarding teaching the sustainable self should come along.

Fourth, the policy alternative regarding the partnership of HEIs with NGOs and Industries should be broken down into two different alternatives. In most case, NGOs and private sector have different roles in building cooperation with HEIs. The private sector should have more roles in supporting HEIs to increase their activities related to sustainability promotion. The internship should be more with private sector/industries than with NGOs.

Fifth, the partnership of HEIs with industries in research activities and community service learning as well as curriculum development should be clearly illustrated.

Sixth, there should be some examples of HEIs' activities for local community development regarding sustainability-related topics. Meanwhile, the concept of sustainable communities should be focused.

Seventh, there should be a consideration of developing a linkage between higher education and general education (primary and secondary education). This linkage was to promote general education students' and university students' awareness of sustainable development and education for sustainable development concepts.

Eighth, details as activities in each policy alternative should be clearly indicated. HEIs lacked resource persons to develop these policy alternatives into activities. In practice, there should be an illustration of policies and activities.

Ninth, the recommendation of the educational policy alternatives should be made and provided to the Ministry of Education, Youth, and Sport for considering and pushing HEIs to put it into action.

The educational policy alternatives were finalized and proposed to Cambodian higher education institutions and the Ministry of Education, Youth, and Sport as follows. Each educational policy alternative was presented in both the draft and final versions.

Vision

Cambodian higher education institutions become potential leaders in promoting sustainability through the "sustainable self" approach by 2030.

Goals

1) To build the capacity of HEIs to become the sustainable self-oriented leader among stakeholders.

2) To enrich human resources, academic resources, and financial resources for HEIs to be able to involve actively in activities related to promoting sustainability.

3) To foster HEIs to be a center for academic resources for promoting sustainability and a higher education hub to create a community of practice on for sustainable development among stakeholders.

Educational Policy Alternative 1

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainability (EfS) among stakeholders. 1. Conduct campaigns to raise public awareness on SDGs and EfS. 2. Mobilize sustainability concepts to the public through mass media and social media.	**Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD) among stakeholders.** 1. Conduct campaigns to raise public awareness on SDGs and ESD in Cambodian and global contexts. 2. Mobilize sustainability concepts to the general public through mass media and social media. The public should understand sustainability-related topics, principles of sustainable development, and relevant everyday activities in relation to contribution to sustainable development.

Educational Policy Alternative 2

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Promote awareness of and participation in practical concepts of sustainability and education for sustainability towards the sustainable self among HEIs and their university people. 1. Align HEIs' vision, policies, and strategies with concepts and principles of sustainability and education for sustainability. 2. Develop capacity of core personnel including university leaders and faculty members in sustainability and education for sustainability through trainings, conferences, seminars, and academic meetings. 3. Increase awareness and develop knowledge, skills, and attitudes among all people on university campus (university leaders, faculty members, administrative staff, other non-academic staff, and students) through campaigns and trainings.	**Promote awareness of and participation in practical concepts of sustainability and ESD in Cambodian context among HEIs.** 1. Align HEIs' vision, policies, and strategies with concepts and principles of sustainability and ESD. HEIs should reveal their initiative in promoting sustainability concepts and principles contextually in practices on their campuses. 2. Develop capacity of key personnel including university leaders and faculty members for sustainability and ESD through training, conferences, seminars, and academic meetings regarding sustainability-related topics and interdisciplinary. 3. Increase awareness and develop knowledge, skills, and attitudes among all people on a university campus (university leaders, faculty members, administrative staff, other non-academic staff, and students) through campaigns and training. HEIs should develop activities which help ensure that university people learn about the concepts and principles of the sustainable self.

Educational Policy Alternative 3

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enhance research related to sustainability and education for sustainability. 1. Build cooperation and network among all HEIs to gain opportunities for learning from each other for research development. 2. Establish a research center for addressing sustainability issues and determine a minimum number of research projects annually in its research policy. 3. Form a research team or research group for each HEI and make sure that team members are from various disciplines or from different faculties/colleges to promote interdisciplinary research. 4. Increase capacity and motivation of faculty members to involve in research related to sustainability and education for sustainability by providing awards and professional ranking and by increasing salary and incentives.	**Strengthen capacity and boost motivation of faculty members to enhance sustainability research.** 1. Build cooperation and network among HEIs to gain learning opportunities from each other for research development. University leaders and faculty members from various HEIs can create an opportunity or attend an event that they can share research experiences regarding research proposal writing, research advancement, and article writing for publications. 2. Establish or strengthen a research center for addressing sustainability issues and determine a minimum number of research projects annually in its research policy. The research focuses should relate to ESD issues at all educational levels (primary, secondary, and higher education). The research should be an interdisciplinary research and action research to improve the quality of education and to contribute to community development. 3. Form a research team or research group for each HEI and make sure that team members are from various disciplines to promote interdisciplinary research. 4. Increase capacity and motivation of faculty members to involve in research related to sustainability. HEIs need to have an action framework of the faculty development in research training and the provision of awards and incentives.

Educational Policy Alternative 4

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Ensure that HEIs' curriculum is integrated with concepts of sustainability and the sustainable self. 1. Develop curriculum based on action research and needs of multi-stakeholders such as companies/industries, civil society organizations, and parents of students to find ways of promoting students' awareness and motivation and including new knowledge related to sustainability. 2. Enrich curriculum with interdisciplinary, sustainability competencies, value education, and soft skills to sure that the curriculum help to increase students' awareness and motivation, to empower students, to develop their knowledge and skills, to take a personal action toward the sustainable self. 3. Increase extra-curricular activities relevant to awareness and practice on sustainability by increasing students' knowledge, shaping their skills, and encouraging them to take a personal action towards the sustainable self.	**Ensure that curriculum and extra-curricular activities in all HEIs' academic programs are integrated with sustainability concepts.** 1. Strengthen academic programs and curricula based on action research and needs of multi-stakeholders including private sectors, civil society organizations, and parents of students. The academic programs should promote all the three sustainability pillars—environmental, economic, and social. The prior disciplines for Cambodian HEIs to concern should at least relate to tourism, urbanization, creative businesses, and agriculture. 2. Enrich the curriculum with interdisciplinary, thinking competencies (system thinking, future thinking, mindfulness, and enquiry), interpersonal competencies/soft skills (communication, working with others, and leadership), and value education. The curriculum should help students increase awareness and motivation, empower them, develop their knowledge and skills, and students take a personal action toward the sustainable self. 3. Develop/increase extra-curricular activities to promote students' awareness and practices regarding sustainability principles. HEIs should help increase students' knowledge, shape their skills, and encourage them to take a personal action towards the sustainable self. The extra-curricular activities may consist of training, conferences, seminars, awareness campaigns, and other on-campus events such as arts, cultural and sports activities.

Educational Policy Alternative 5

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enhance sustainability-based and sustainable self-based instruction at HEIs in all academic programs. 1. Develop and apply eco-pedagogy to instruction by consulting experts in education for sustainability. 2. Apply the sustainable self approach to instruction to promote students' awareness, motivation, empowerment, knowledge, skills, and practice in a responsible manner. 3. Stimulate everyday activities for the sustainable self and develop students' habits to learn to behave from simple personal actions. 4. Promote assignment related to project-based or problem-based learning by bring issues in communities to classes for stimulating resolutions.	**Develop faculty members' capacity to enhance the sustainable self-based instruction in all academic programs at HEIs.** 1. Strengthen faculty members' knowledge of the sustainable self, transformative pedagogy, and eco-pedagogy. Faculty members need be trained to have up-to-date knowledge and teaching skills. The training themes should relate to (1) awareness of sustainable development issues, (2) student motivation approaches, (3) student empowerment approaches, (4) sustainable development principles and themes, (5) sustainable skill development, and (6) personal action and practice of sustainable lifestyles. 2. Apply the "sustainable self" concept to an instruction by promoting students' awareness, motivation, empowerment, knowledge, skills, and practice in a sustainable lifestyle. Faculty members can stimulate students' daily life in relation to the sustainable self and develop students' habits in learning to behave a responsible manner beginning from their simple personal action. Students' behavior development should relate to the culture of togetherness, social responsibility, caring, compassion, and respectfulness. 3. Promote project-based or problem-based learning (PBL) as a core part of coursework. This PBL should help students improve their problem-solving skills by bringing issues in communities to classes for stimulating resolutions. They can learn to identify sustainability-related issues on campus and in local communities and to develop alternative resolution approaches. There should be an award and publication for top-ranking projects to keep students motivated. 4. Promote action research activities to enhance teaching and learning related to the sustainable self as well as to develop the eco-pedagogy. HEIs motivate faculty members to learn to improve their instruction through action research.

Educational Policy Alternative 6

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enhance higher education partnership among domestic HEIs to promote sustainability and the sustainable self. 1. Stimulate collaboration among all domestic HEIs by engaging them in dialogues or meetings. 2. Build collaboration among HEIs on conferences, academic programs, and research by exchanging faculty members or other resource persons and by joint programs to promote sustainability and the sustainable self. 3. Develop a network or a mechanism to allow communication among all levels including university leader, faculty member, and student levels by increasing Memorandum of Agreement (MoA) to share information and knowledge related to sustainability.	**Enhance the cooperation among HEIs on sustainability knowledge sharing and research development.** 1. Stimulate cooperation among all domestic HEIs. There should be an annual high-level meeting/dialogue of university leaders under the coordination of the MoEYS and relevant ministries. The meeting/dialogue' themes should relate to approaches to increasing university people's awareness, motivation, empowerment, knowledge, skills, and practices towards sustainable development in higher education. 2. Build cooperation among HEIs to strengthen university people's capacity in sustainability. Their cooperation should promote knowledge development (research), knowledge sharing (conferences), academic programs, faculty exchange, student exchange, and academic resource exchange. HEIs can create a community of practice on ESD for knowledge sharing. 3. Develop a mechanism to promote communication among HEIs all levels including university leader, faculty member, and student levels through extra-curricular activities relating to sustainable development. 4. Build a strong network with other HEIs to establish a Regional Center for Expertise (RCE) on ESD. To produce a better achievement of knowledge development, HEIs should approach other stakeholders such as schools, NGOs, and businesses for joint projects.

Educational Policy Alternative 7

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enhance partnership with NGOs and private sector to promote sustainability and the sustainable self across the country. 1. Strengthen capacity of faculty members in research development so that they are able to build trust to NGOs and companies/industries in terms of research related to sustainability. 2. Identify needs of NGOs and companies/industries to find ways to engage them in projects related to sustainability and the sustainable self. 3. Build cooperation with NGOs and companies/industries on activities related to sustainability and the sustainable self by increasing Memorandum of Agreement (MoA) and translating it into practice. 4. Extend approaches to existing strong network of NGOs like NGO Education Partnership (NEP) and NGO Forum to cooperatively work on the sustainable self/education for sustainability at ground levels across the country.	**Enhance the cooperation with governmental institutions, international governments and organizations, and relevant non-governmental organizations on the increase of sustainability research, student capacity for sustainability, and public awareness of sustainability.** 1. Cooperate with institutions of the Royal Government of Cambodia (RGC) to promote research, academic programs and student development in ESD. HEIs should approach various levels of RGC for joint research, curriculum development, and student capacity improvement. At the same time, HEIs should help build the capacity of the governmental staff (civil servants) in the sustainable self. 2. Cooperate with international governments and organizations on sustainability research advancement and community development. HEIs should strengthen the research capacity of faculty members. HEIs can identify the needs of their partners before developing research proposals regarding sustainability-related topics. 3. Cooperate with NGOs to promote sustainability research, capacity building of students, and public awareness. HEIs may consider extending approaches to relevant NGOs and the extensive network of NGOs such as NGOs Education Partnership (NEP) and NGOs Forum on Cambodia. The two networks contain local NGOs in all provinces of Cambodia.

Educational Policy Alternative 8

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enhance partnership with NGOs and private sector to promote sustainability and the sustainable self across the country. 1. Strengthen capacity of faculty members in research development so that they are able to build trust to NGOs and companies/industries in terms of research related to sustainability. 2. Identify needs of NGOs and companies/industries to find ways to engage them in projects related to sustainability and the sustainable self. 3. Build cooperation with NGOs and companies/industries on activities related to sustainability and the sustainable self by increasing Memorandum of Agreement (MoA) and translating it into practice. 4. Extend approaches to existing strong network of NGOs like NGO Education Partnership (NEP) and NGO Forum to cooperatively work on the sustainable self/education for sustainability at ground levels across the country.	**Enhance the cooperation with businesses on the promotion of sustainability research, the student capacity improvement, and the development of sustainable business models.** 1. Promote private sector's awareness of sustainability concepts, and sustainable business. HEIs may approach businesses for sharing sustainability knowledge with businesses' staff. They should at least discuss sustainable productions, the corporate social responsibility (CSR) and creating shared values (CSV) concepts. 2. Approach businesses for cooperating on sustainability research. HEIs may propose sustainable business research, which appears to be the most interest of businesses. There could be joint research projects between HEIs and businesses. 3. Strengthen cooperation with businesses on the capacity improvement of students in sustainability. Students should be engaged in internships, practicums, and seminars to improve their knowledge and skills regarding sustainability. 4. Cooperate with businesses to develop sustainable business models. The sustainable business models should relate to all the sustainability pillars—environmental, economic, and social. Corporate Social Responsibility (CSR) and Creating Shared Values (CSV) should be integrated into the sustainable business models.

Educational Policy Alternative 9

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Promote community service learning and community development activities for at HEIs. 1. Maximize voluntary programs related to sustainability for students so that HEIs have more opportunities to develop students' spirit and mindset in learning to make contribution for the society. 2. Engage faculty members in community service learning so that they can direct students on assignments or projects related to community development. 3. Provide supports or capacity building to students on community development activities or community service learning that so they are capable to mobilize sustainability concepts to people in local communities. 4. Encourage the existing group of students like student association, student senate, or student council at HEIs to involve in activities related to sustainability.	**Promote community service learning and student engagement in the voluntary activities.** 1. Promote student orientation on community service learning program. HEIs should help students understand the values of their involvement in voluntary activities. This program can increase students' learning opportunities to develop their spirit, mindset, and attitude. They learn to share, care, and love. These core values help them to develop sustainability skills for creating a sustainable lifestyle. 2. Engage faculty members in community service learning program. They can assist students in developing projects related to sustainable community development. 3. Improve capacity of students in sustainable community development. Students should learn about the sustainable self and on how to mobilize sustainability concepts to people in local communities through their projects. 4. Maximize students' participation in the community service learning program. HEIs should encourage the existing group of students like student association, student senate, or student council at HEIs to involve in the program. HEIs should give academic credits or awards to students who have involved in the program.

Educational Policy Alternative 10

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enrich academic resources for promoting sustainability and the sustainable self at HEIs. 1. Develop an inter-library system among HEIs and partners so that faculty members and students can have wider access to information on books, journals, reports, and other documents through database system and they are allowed to borrow those documents across HEIs. 2. Increase research activities for faculty members and students and file collection of research articles. 3. Subscribe both paper-based and electronic sources such as books, journals, and relevant documents.	**Enrich academic resources and physical infrastructure for university people to increase their sustainability knowledge.** 1. Develop a resource sharing network among HEIs and relevant stakeholders by creating interlibrary loan system. HEIs should ensure that faculty members and students can have access to a wide range of books, journals, theses, and other academic documents related to sustainability and ESD through their database system. 2. Update academic resources regarding sustainability and ESD globally and physical infrastructure with sustainability concepts (e.g. sustainable designs). HEIs may consider environmentally friendly paper-based books and electronic books, electronic journals. 3. Strengthen capacity of faculty members in producing academic resources regarding sustainability and ESD and encourage them to write for academic publications to input in their libraries. HEIs may provide professional awards and credits to their faculty members who have produced the academic resources. 4. Create a unit for promoting academic resources of sustainability and ESD at individual HEIs. HEIs may consider a center for publications on sustainability and ESD. The center should welcome papers/articles and books from various disciplines in line with sustainability from both national and international academics.

Educational Policy Alternative 11

Draft of the Educational Policy Alternative	Final Educational Policy Alternative
Enrich financial resources for promoting sustainability and the sustainable self at HEIs. 1. Maintain existing sources of finance from school fees and be accountable for using the existing finance effectively. 2. Strengthen research capacity to attract research funding from development partners and companies/industries. 3. Increase service providing such as professional training, consulting, and catering to communities. 4. Conduct research to develop innovative ideas for new products to supply manufacturers and business institutions. 5. Establish alumni group and engage the alumni group in contribution for their university development; for instance, HEIs conduct fundraising from their alumni for increase their activities related to public awareness on the sustainable self.	**Enrich financial resources for utilizing in capacity building activities to promote sustainability.** 1. Strengthen the capacity of responsible personnel in sustainable financial management. HEIs should be able to manage their financial resources in both short-term sustainability (for resilience) and long-term sustainability (for maintaining services). They need to maintain the existing sources of finance and are accountable for using the existing finance effectively. 2. Strengthen university people's capacity in applying sustainable development principles at HEIs to reduce expenditure at work. University people should learn about cost saving, energy saving, re-use, recycle, and sustainable consumption to minimize expenses. 3. Promote practices of sustainable development principles on campus. HEIs can personalize the sustainable development principles with respect to environmental protection, economic growth, and social development at the HEIs. HEIs should motivate university people to behave in a sustainable manner, such as learning to share helps, learning to minimize costs as well as learning to save environmental resources. 4. Increase financial sources by using their human resources and facilities to sell services and innovative concepts of products. HEIs can consider the increase of (a) services providing on professional training and consulting, (b) innovative ideas for creating sustainable products, and (c) donation from their alumni to promote public awareness of the sustainable self concept.

CHAPTER 5
RESEARCH DISSCUSSIONS

The discussion of research findings regarding capacity building of higher education institutions to promote sustainability in Cambodia is discussed in this chapter. It is followed by the discussion of the educational policy alternatives for the capacity building.

1. Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia

The discussion of the capacity building of HEIs relates to (1) capacity of key personnel for sustainability, (2) sustainability research, (3) curriculum and instruction regarding ESD, (4) partnership development for sustainability, and (5) community involvement for sustainability.

1.1. Capacity of Key Personnel for Sustainability

There are two main concerns on the academic qualification of faculty members to promote sustainability education. First, the research suggests that Cambodian higher education have the overload of Bachelor faculty members and the insufficiency of PhD faculty members. The overall student-faculty ratio appeared to be well-matched with the Minimum Standards for Accreditation of Higher Education Institutions. However, by degree, the faculty-student ratio in the lowest degree programs is too high, and this is opposite to the highest degree programs.

Some studies suggest higher qualification of faculty members help university students learn better to ensure Cambodian higher education quality (Chen et al., 2007; Heng, 2014). Faculty members with low qualification as an undergraduate degree, especially if they work as a part-time contract, negatively influence students learning (Benjamin, 2003). The small proportion of PhD academics may result in a shortage of researchers who can develop new knowledge related to sustainability. Faculty members with the highest academic qualification (as PhD) are very needed for Cambodian higher education to increase a sustainability awareness level for faculty members themselves as well as for other university people. Meanwhile, HEIs in many

ASEAN countries such as Singapore, Malaysia, Thailand, Indonesia, and Philippine have the majority of their faculty members who hold PhD.

There was a big challenge to increase the qualifications in Cambodian higher education. The challenge was that the financial constraint resulted in the slow growth of PhD academics. HEIs need to invest in a considerable amount of money for supporting their faculty members to pursue PhD degree as well as for providing suitable incentives to PhD academics. In such a situation, most HEIs, except the public HEIs, preferred having part-time faculty members to the full-time ones. The part-time academics can move around several HEIs and assist HEIs that need high qualified faculty members. Some studies found that because part-time faculty members involve less time in students' learning, they affect students' graduation rates (Benjamin, 2003; Ehrenberg & Zhang, 2005).

Yet, like full-time faculty members, part-time ones can provide positive effects on the student learning quality if they can complete required assignments in the role as a faculty member (Rogers, 2015). These part-time faculty members in the United States higher education were well treated and supported to involve actively in campus activities. That is far different from the part-time condition in Cambodian higher education. Cambodian HEIs pay their part-time faculty members by the teaching contact hours only, and there is no incentive support for other activities, such as attending meetings, conferences, and seminars. The part-time academics might not be able to complete necessary faculty members' tasks in teaching and research with quality if they teach many classes or work in more than just a few HEIs. Therefore, having part-time faculty members in Cambodian higher education can be a survival only and may not be a good solution for higher education quality as well as for sustainability education.

Second, faculty members' expertise, which was based on HEIs' academic programs, greatly related to business, economic, education and language, and science and technology disciplines. Meanwhile, faculty members with the expertise in environment, health science, and agriculture disciplines were miniature. Some people may say Cambodian HEIs have a little attention on sustainability by looking at the findings. Actually, sustainability is not only about environmental concepts, but it is

much more than that. All the three pillars—economic, environment, and social aspects—should grow together to create a sustainable world. However, these findings could help HEIs identify what they need to put more concerns. Obviously, all of the above disciplines can contribute to the promotion of sustainability if HEIs design their academic programs to do so. At the same time, faculty members have to be qualified enough with sustainability knowledge and skills, so that they can mobilize sustainability concepts to their discipline. Before they can do that, faculty members may need to have sustainability literacy to start their step in "the sustainable self" concept.

Dealing this matter, HEIs should consider on faculty development for building and strengthening their faculty members' capacity in sustainability. They should deeply understand the sustainability principles and the Five Capitals concept and to acquire skillful means with key competences in sustainability (Murray, 2011). The interpersonal competences supported by basic competences are very fundamental to relate other four competences—systems thinking, strategic, normative, and anticipatory—into a sustainability research and problem-solving framework (Wiek, Withycombe, & Redman, 2011). More specifically, they need action competence for sustainability with respect to positive belief, core value, and communication skills (Almers, 2013). Thus, as sustainability in Cambodian higher education seems to new, so HEIs need to consider on faculty development programs, which are designed for faculty members from various disciplines to promote sustainability education, as a prior action.

As found, HEIs' scholarship policy reveals their attention and the encouragement of faculty development. Regarding quality, there is no doubt for academics who obtain a post-graduate degree in foreign universities. Yet, there may a question on quality of academics who do in domestic HEIs. Most domestic HEIs emphasize coursework and put students away from scientific research. From public perspectives, degree holders from abroad are more appreciated. Likewise, for the sake of higher education quality, HEIs need young Cambodian academics from abroad (Ford, 2013). However, HEIs may need to invest in great costs for the support of their faculty members to take a post-graduate degree in foreign universities. In the financial

limitation condition, supporting their faculty members to have a higher degree in affordable costs would be a choice. Even preparing their faculty members at an HEI where they work for may be acceptable if the HEI reconsider the improvement of their academic programs.

The most important thing is their academic programs are appropriately designed for faculty preparation by promoting "socialization experience for aspiring faculty" (Austin, 2002), by orienting the role of faculty member with knowledge of "pedagogy, service, collegiality" (Speck, 2003), by stimulating them to discover new teaching approaches through pedagogy (Johnson et al., 2009), and by introducing ecopedagogy (Gadotti, 2010). Additionally, the academic programs should promote "practice-based PhD" with the development of action research skills for faculty members (Winter, Griffiths, & Green, 2000). In addition to understanding faculty's work and responsibility, academics need to learn to improve their awareness of sustainability, to motivate themselves to have a sustainable behavior, to empower themselves to have more positive belief, to develop knowledge and skills based on sustainable development principles, and to start their activities in everyday life and the academic career.

The faculty development for a post-graduate degree in foreign universities can be essential if they do in disciplines that are not available in Cambodia. Especially, Cambodian HEIs need faculty members in the expertise of interdisciplinary and sustainability-related disciplines. This action may help HEIs to have resource persons for improving their academic programs, teaching, and research towards ESD. They could integrate sustainability concepts into their existing academic programs. For example, the business administration program can be value-added with green business and social responsibility concepts. Topics of "ethics, corporate social responsibility, and sustainability" are successfully integrated into MBA programs (Christensen, Peirce, Hartman, Hoffman, & Carrier, 2007; Hesselbarth & Schaltegger, 2014). This mechanism can be successful when HEIs have sustainability-oriented academics. Whether or not academics take a degree in sustainability is not matter. The most important thing is that academics are knowledgeable about sustainability concepts and

have an ability to mobilize sustainability concepts to students. HEIs may need to consider the faculty development in non-degree education.

There are three key matters for Cambodian HEIs to take into an account. First, MoEYS and HEIs needs to improvise the faculty development activities to be more relevant to the sustainable self. Few HEIs promoted their faculty members' sustainability literacy through training courses, conferences, and seminars on various themes related to the environment, social business, and community development. In contrast, the MoEYS drew much attention on the development of HEI leaders and faculty members in management and leadership and research skills. When university leaders and faculty members apply the management and leadership skills, they are meant to participate in developing a part of sustainable development competences. Once they can shape research areas in sustainability-related topics, they can increase sustainability knowledge.

Still, a little attention of MoEYS on strengthening higher education personnel's capacity in sustainability may result in a fruitless attempt to stimulate the participation of all HEIs. The MoEYS serves as a central body to supervise HEIs and has the power to streamline the performance of HEIs (Rany, Souriyavongsa, Md Zain, & Jamil, 2013; Un & Sok, 2014). In Cambodian context, ensuring a more effective mechanism of faculty development to promote sustainability needs initiative and involvement of the MoEYS. The Ministry could motivate HEIs for implementation through its educational policy on faculty development.

Second, it could be a big concern that majority of faculty members were absent from training and academic meetings on the key themes related to the environment, economic, and social aspects of sustainability. The poor engagement of faculty members in those activities may relate to their part-time contract. Most faculty members are part-time academics, and they have a hard time to involve in other university activities than their teaching. HEIs may need to motivate these faculty members by identifying their needs and interests (Hardré, 2012) and engaging them in a comprehensive program with an "individual development plan (IDP)" (Burnstad, 2002). Faculty members in both full-time and part-time contract should be valued, provided with full support for professional development, and brought closely to their

campus. Even part-time faculty members should, at least, have an office space and incentive support for training to get them connected to their campus activities.

Third, HEIs appeared to lack clear faculty development programs that could support faculty members to expand sustainability knowledge and to gain skills for sustainability. Without the support from foreign partnered universities or donors, the engagement of faculty members in international academic meetings scarcely occurs for Cambodian HEIs. Even, on-the-job training and seminars provided to faculty members at most HEIs were lacking. To improve faculty members' capacity in promoting ESD, HEIs should keep the faculty members involved in "continuous training and routines" (Sammalisto, Sundström, & Holm, 2015) and training program and building a network called a Community of Practice (Cortelazzo, 2015). Faculty members can learn from each other by using modern technology and strengthening communication to exchange new knowledge.

For instance, the three following cases of professional development for part-time faculty members can be helpful to Cambodian HEIs. First, faculty members are provided with training in live and online mode consisting of workshops, independent study, online discussion etc.; second, one-day roundtable discussion combined with keynote presentation and group discussion is organized for faculty members; and third, the college arrange a two-hour weekly meeting for presentation and discussion (Wallin, 2007).

Importantly, not just their full-time faculty members, but their part-time faculty members need supporting with a systematic faculty development in a well-arranged comprehensive program with clear planning in each academic year (Burnstad, 2002). Then, besides planning and practice, the follow-up activities for faculty development in term of monitoring and evaluation should accompany (McLean, Cilliers, & Van Wyk, 2008). The Clear framework for faculty development is very helpful to identify what and how faculty members should learn to strengthen their knowledge and competence in sustainability education.

All people on the university campus at all levels including university leaders, administrative staff, faculty members, students, security guards, and other staff need to have an awareness of practical concepts of the sustainable self. University leaders

and faculty members are the key personnel to develop knowledge related to sustainability and education for sustainability first so that they can become leaders to begin activities on campus and to share the knowledge with the others. The Ministry of Education and HEIs should work together to increase their awareness on Sustainable Development Goals and Education for Sustainability. Increasing their awareness and developing their knowledge, skills, and attitudes can be done through campaigns, training, conferences, seminars, dialogues and network among HEIs and their people. Last but not least, university people should be engaged in activities which they can learn to practices towards a sustainable lifestyle at home, on campus, and in Cambodian society.

1.2. Capacity Building for Sustainability Research

For building capacity of Cambodian HEIs to promote sustainability research, HEIs need to cope with the three main challenges—research focuses, financial resources, and research capacity of faculty members. First, most research projects conducted by Cambodian HEIs focused on the environment, agriculture, and community development areas. Those research projects aim to assist local communities. Besides their research areas covering the pillars of sustainability, those HEIs show their engagement in community activities. It can be called an action research for community development (Sipos, Battisti, & Grimm, 2008). HEIs need to consider a clear framework for a "holistic approach" (Too & Bajracharya, 2015) to strengthen their partnership with local communities (Sanusi & Khelghat-Doost, 2008).

After conducting research, HEIs should not finish their projects without following up their projects and sharing research results to the community people. Likewise, for the success of their Sustainable Toronto project which was a community-based research, the University of Toronto and York University involved their faculty members, students, and partners including environmental non-governmental organizations (Savan, 2004). HEIs should have a clear policy which promotes the cooperation with communities at all levels in long-term development. This mechanism could open opportunities for faculty members and students to

approach villagers and vice versa. HEIs' research projects that contribute to the development of local communities can be very practical in promoting sustainability.

HEIs' research areas happened in funding agencies' interests more than their focuses because they mainly relied on the funded project-based research. Most research projects were associated with the environment, agriculture, and community development areas while only few research projects were concerning the economics and business areas. The little attention of these HEIs to research in economic and business disciplines might result in the shortage of new knowledge on economic and business for sustainability.

At least, in the business discipline, there should be research to increase knowledge related the "Corporate Social Responsibility" (Christensen et al., 2007; Moon, 2007). While most HEIs teach economic and business disciplines, they should generate new knowledge concerning the connection between those disciplines and sustainability. HEIs need to promote research in "interdisciplinary" to address sustainability challenges (Hart et al., 2015; Manring, 2014; Ryan et al., 2010). Also, research should deal with "holistic approach" collaboration between universities and communities (Too & Bajracharya, 2015) and help improve learning for sustainability through action research (Axelsson et al., 2008; Tilbury et al., 2004).

Second, the above-mentioned research projects appear to be a sort of project-based research, supported by their development partners such as international agencies and foreign universities. Such research activities have been found at top ranking public universities. Withstanding, research activities in Cambodian higher education have relied on "foreign donors and partners" and public HEIs have more opportunities to attract research funds (Chealy, 2009). In this context, research activities in those HEIs are more likely to meet the targets of the funding agencies than to concern teaching and learning matters in education for sustainability. It could indicate the weak relationship between research areas and learning development at those HEIs. This relationship is essential because action research findings can help faculty members advance their curriculum and instruction to shape graduates' skills towards sustainability (Tilbury et al., 2004).

Similarly, Danish University on Education, Lund University, and Malmo University collaborated with World Wild Fund Sweden and Ecological Market Centre) in establishing the Regional Centre of Expertise (RCE) Skane to develop a learning for sustainability (Axelsson et al., 2008). The RCE at Kobe University has succeeded in implementing a "participatory action research" project on education for sustainability through "interdisciplinary collaboration" of three different faculties (Itoh et al., 2008). Sustainability research has been engaged in education for sustainability. Although Cambodian HEIs rely almost entirely on donors, they should consider how they could maximize the benefits of research projects to improve their curriculum and learning activities on campus in addition to contributing to community development.

Many successful cases suggest HEIs build a partnership to operate joint research projects. In Japan, universities collaborated research projects with local schools, government agencies, non-governmental organizations, and businesses to promote education for sustainable development, and this mechanism was called RCE on Education for Sustainable Development (Mochizuki & Fadeeva, 2008). Malaysian universities realized the positive impact of the RCE by applying the "adjustment and re-orientation" of their higher education system with sustainable development principles (Khelghat-Doost, Sanusi, Dato' Tunku Faridd, & Jegatesen, 2011). Despite that, in the current situation of Cambodia, HEIs have approached international agencies and non-governmental organizations for research funds.

Third, faculty members need preparing to be professional researchers and receive suitable incentives. HEIs that have faculty members with a higher level of research capacity have more chances to obtain research funds. To deal with this issue, HEIs should prioritize the faculty development for fostering research for sustainability. Some essential training modules for faculty members may include "Introduction to Sustainable Development (SD), Education for Sustainable Development (ESD), and Methods of ESD" (Barth & Rieckmann, 2012). They should be engaged in continuous training programs for up-to-date knowledge (Sammalisto et al., 2015). Besides this capacity building, universities should concern at least the professional ranks and awards, salary increase, and improvement of academic

resources (Kwok et al., 2010). Hence, the important step for HEIs is to improve the faculty development framework in research advancement and the motivation approach.

Cambodian HEIs need to set a clear vision and policy actions regarding research about sustainability. While looking for external funding assistance, these HEIs should seek additional ways to allocate own financial support for promoting research activities. On the other hand, these HEIs need to take an action in preparing and strengthening faculty members' capacity in sustainability research in addition to the incentive improvement. The capacity development of faculty members may assist them to have in having equal opportunities for research. A mechanism of building the collaboration among faculty members from various disciplines to work on joint research projects could help them learn from each other to improve their capacity.

1.3. Curriculum and Instruction for Sustainability

HEIs can consider three mechanisms to build their capacity in enriching curriculum and instruction. First, HEIs need to promote their academic programs and curricula to be more concerning ESD. Academic programs of most HEIs were mainly associated with business and economic development aspect, but slightly with environment aspect. Although making a balance of academic programs in the sustainability pillars is a major obstacle for HEIs, what they could do is to integrate sustainability concepts into the curriculum of those academic programs (Gosselin, Parnell, Smith-Sebasto, & Vincent, 2013).

Evidently, including the "Global Seminar" course, which increases opportunities for students to exchange knowledge and practices regarding principles of sustainability, can be a model for promoting teaching and learning about sustainability (Savelyeva & McKenna, 2011). Similarly, PUC has the required courses on "Global Awareness" for all disciplines. Then, the next step is to build collaboration between various disciplines (Parayil, 2010). Other words, it can be called "interdisciplinary" for developing students' systems thinking approaches (Clark & Wallace, 2015). HEIs, at least, could train students to have wide knowledge and skills in problem-solving based on the holistic approach.

Some studies have argued that teaching related to "interdisciplinary" be able to widen students' knowledge in response to sustainability issues (Clark & Wallace, 2015; Hart et al., 2015; Ryan et al., 2010). Additionally, universities can develop their "curriculum greening from subject to institution level" (Junyent & de Ciurana, 2008). There are some practical concepts in respond to the fact that many Cambodian HEIs focus on business and economics disciplines. A study of top 50 global business schools indicated that universities taught business ethics, corporate social responsibility, and sustainable business to increase students' awareness (Christensen et al., 2007).

Another case, University of New Hampshire reforms its previous curriculum by promoting "interdisciplinary research and community, and industry engagement" (Barber, Wilson, Venkatachalam, Cleaves, & Garnham, 2014). In Thailand, the Faculty of Education of Chulalongkorn University requires students to take the course "Education for Sustainable Development." It is essentially helpful for Cambodian HEIs to consider an integration of sustainability concepts and a design of interdisciplinary course into their curriculum.

HEIs tend to favor students' interests, but they seem not to respond well to needs of the employment market. In the meantime, there is a little interest of businesses in green growth concepts although the Royal Government of Cambodia has encouraged the business through its policies regarding "greening the enterprise, tax exemption for green investment, direct incentives for ecosystem services, and forest management and conservation" (Mohammed, Wang, & Kawaguchi, 2013).

Even so, the government seems not to take a strong enforcement on green businesses. Banks in Cambodia showed little interest in providing loads related to green ideas because their staffs are not knowledgeable enough on green growth concepts (Mohammed et al., 2013). The lack of private sector' investment in green growth may cause the lower demands for graduates in green skills. Even so, HEIs should produce their graduates with the knowledge, skills, and attitude towards the sustainable self. The sustainable self oriented graduates could work to provide high impact to the businesses they work for and the community they live in.

Second, HEIs need to boost initiatives on extra-curricular activities respecting the promotion of students' awareness of sustainability as well as the development of sustainability skills. HEIs may consider the promotion of extra-curricular activities such as "awareness campaigns, on-campus events, training and personal development opportunities, sustainable development groups, off-campus events, and modification of the campus environment" (Lipscombe, Burek, Potter, Ribchester, & Degg, 2008).

Specifically, engaging students in extra-curricular activities as training on "awareness, motivation, and empowerment" significantly helps change students' attitude towards sustainability (Murray, Goodhew, & Murray, 2013). In addition to promoting the interdisciplinary, HEIs should design courses to increase students' practice-based learning through extra-curricular activities. The extra-curricular activities are necessary to train students on practices of soft skills to develop their personality and attitude (Ly, 2013), as well as to develop sustainability competence (Mochizuki & Fadeeva, 2010). After that, activities that engage students in building the public awareness in communities should come along. HEIs should prepare students to be sustainability-oriented practitioners and motivate them to influence other people.

Third, faculty members need to design their courses and instruction in line with sustainability concepts. Encouraging faculty members to integrate interdisciplinary concepts into their courses can be a starting point. More than just concerning the integration, HEIs can support their faculty members to apply the "ecopedagogy" by promoting "more cooperative" culture in the curriculum (Gadotti, 2010) and the "transformative pedagogies" in a design of teaching and learning (Blake, Sterling, & Goodson, 2013).

Additionally, faculty members can engage students in the "project-based and problem-based learning courses" to build the linkage between teaching and real-world problems in communities (Brundiers & Wiek, 2013). It could increase opportunities for students to learn about practical concepts to work out sustainability issues. Before faculty members can do those things, HEIs need to develop their faculty members' capacity in education for sustainability by "continuous training and routines" (Sammalisto et al., 2015). Especially, the training should not only focus on how to

promote sustainability concepts in teaching but also stimulate the motivation of faculty members to apply those concepts. Once faculty members are assigned to teach sustainability concepts in their disciplines, they have a chance to improve their capacity and to motivate to enhance their sustainability knowledge and skills.

1.4. Partnership Development for Promoting Sustainability

Cambodian HEIs appear to be a dependent body in collaboration with partners. HEIs built a partnership with other academic institutions, governmental institutions, non-governmental organizations, and businesses to seek opportunities for build capacity of their students. Their partnership with international governments and organizations and MoEYS resulted in receiving research grants and community development projects.

There seems to be an unclear indication of collaboration between HEIs in practices. Most HEIs just show a list of their partnered foreign universities without details of their activities, while few HEIs reveal their collaboration activities on a student exchange program and joint academic meetings. The majority of HEIs seem to show pictures of their partnership with foreign universities to attract students' interest. The matter is that the collaboration among domestic HEIs appears at a low level. HEIs should increase more opportunities to improve their education quality if they can assist each other. They could exchange their academic resources to support student learning. Additionally, they join a research to generate new knowledge or share knowledge regarding sustainability. Cooperation between HEIs and their network to build a community partnership is needed in fostering education for sustainable development (Sanusi & Khelghat-Doost, 2008).

There may not be sufficient for HEIs to work with various governmental institutions for improving students' knowledge through study visit. There should be more activities regarding the capacity building of both university people and governmental staff to increase sustainability knowledge. HEIs reveal their passive participation in public awareness campaigns on environmental issues. If HEIs are a key organizer of the campaigns, there may be an expectation of more faculty members and students' involvement. HEIs should be an initiative body to approach the governmental institutions in various sectors. The research grants from only the

MoEYS may not be able to promote research activities in all HEIs. HEIs may consider research support from other ministries.

To most HEIs, their partnership with local NGOs is for improve their students' practices through internship and thesis conducting. There seems to be an absence of interaction between HEIs and local NGOs. They both should increase their cooperative activities for developing sustainability knowledge and encouraging practices of sustainability principles at their work and in local communities. A university's collaboration with other stakeholders such as non-governmental organization and school can establish joint projects to develop a learning for sustainable development (Axelsson et al., 2008). When HEIs and local NGOs join projects for raising public awareness of sustainability, there would be a strong impact on local community people. Then, they should take further actions to motivate and empower those people to have a positive belief of changing towards sustainable behavior. Finally, those people would be expected to have better knowledge and skills to take a personal action for a sustainable lifestyle.

There seems to be a big gap for the partnership between HEIs and businesses. So far, HEIs appeared to consider businesses as a place where their students could learn to improve job skills. Since businesses can be a good partner in providing academic assistance, HEIs may maximize the benefits of their partnership. Businesses need to have qualified staff. In addition to supplying sustainability-oriented graduates to businesses, HEIs should help build the capacity of businesses' current staff to have sustainability competences. When the sustainable self can be mobilized to businesses' staff, there would be a great impact on a larger population in the society. Additionally, HEIs may consider a new paradigm of their partnership to promote sustainability research, community development, and public awareness campaigns.

The establishment of a partnership between HEIs and international governments and organizations assist HEIs in enhancing research funding and community development projects. HEIs appear to have opportunities to conduct research to generate sustainability knowledge in local communities. However, their research areas seem to be framed by those donors. Meanwhile, action research to

promote ESD has not been focused. HEIs should design research which can be utilized to support students' learning about sustainability.

HEIs should have more potential in generating sustainability-related knowledge and play as a leader of education for sustainability. HEIs need to reconsider their visions and strategies to strengthen their cooperation with partners at various levels among different HEIs from university leader level to student level. Various means of communication should be applied such as face-to-face and online conversation to build a network or a community of practice. Additionally, to speed up the sustainability awareness among people, HEIs can maximize partnership with existing networks like NGO Education Partnership (NEP) and local mass media.

1.5. Community Involvement for Promoting Sustainability

The increase of Cambodian HEIs' community involvement appears to depend on students' participation. These HEIs need students to be responsible for running activities. At the same time, HEIs themselves provided some assistance or coordination to the participated students depending on what kinds of activities are.

Students have been engaged in the most common activities such as environmental and road safety awareness campaign, field trip on the environment and basic health care, and fundraising to support orphan children as well as poor children at schools. This student engagement appears to be similar to a case of a Chinese university that its students are given opportunities to involve in inside and outside campus activities for keeping public places green (Niu, Jiang, & Li, 2010).

Additionally, they get involved in university programs or research projects regarding environmental education and community development. Students' participation in such activities can be probably called "informal curriculum activities" including volunteering, internships, club and societies, and campus events (Hopkinson, Hughes, & Layer, 2008). The above student engagement apparently matches "Common Experience in sustainability" for university students (López, 2013). As found in research results, students' informal curriculum activities seem to be moderately realized among Cambodian HEIs. That could mean HEIs pay attention to student spiritual development for social responsibility outside the classroom. It is

very meaningful for students to become good citizens of the country as well as for the globe. Even so, they reveal just a little attention.

Meanwhile, the findings indicate the shortage of HEIs' activities that could build a strong relationship between students and community people in regular basis along with academic terms. Very few HEIs appear to take part in the community service learning program and so do few students. Advantageously, community service learning could enable students to bring community issues for debates in class to stimulate practice-based knowledge (Keen & Baldwin, 2004; Too & Bajracharya, 2015).

Community service learning in a Cambodian university helps develop students' personality and attitude of "kindness" to people in the society and with "Buddhist ethics as *brahmavihara* (goodwill, compassion, empathetic joy, and equanimity)" and the common good (Ly, 2013). These qualities appear to be key parts of the sustainability competences (Mochizuki & Fadeeva, 2010), and every individual may need these competences to behave in a sustainable manner (Murray, 2011). However, for three years at their university, somewhat two-thirds of students revealed poor engagement in any activities related to sustainability on their campus and in local communities. During their university life, the majority of students would probably miss learning opportunities to involve in the voluntary activities as well as to behave towards the common good for the society.

Among the above activities, students reveal much concern on the social development aspect, especially the activities related to poverty reduction. The participation of students seemingly responds to one of the biggest challenges of the country. The Royal Government of Cambodia has prioritized the poverty alleviation (MoE et al., 2011). Although Cambodia has succeeded in reducing poverty with the dropping rate from 53.30 percent (2004) to 20.50 (2011), many people may still need program support in agricultural knowledge to stay above the poverty line definitely (World Bank, 2014). Hence, HEIs' attention in increasing level of student engagement in social development aspect remains necessary.

On the other hand, student engagement in activities related to climate change appears to be very low. Many Cambodian people, especially farmers, had not yet

ready in responding to climate change issues (Phorn, 2015). Though, the Ministry of Environment has worked on climate change since 2002 and created its Department of Climate Change. In addition to the existing Cambodia Climate Change Strategy 2014-2023, the Ministry of Environment released the Cambodia Climate Change Action Plan 2016-2018. 2 of 17 actions emphasized the "curricula on climate change" and "climate change public awareness raising" (MoE, 2016). Recently, the Ministry of Health notified the people of hot weather with a temperature range between 38^{o}C and 40^{o}C, which could occur till mid-2016 in the country and recommended the people pay a close attention to water saving for necessary consumption such as the water use for drinking (Eng, 2016). Thus, an action to increasing public awareness on climate change resilience among university students as well as community people is probably urgent. The same thing should be focused on the least concerned themes such as green business and recycling.

HEIs appear to have a strong influence on student engagement in local communities. Most of the students' volunteer activities seem to be greatly inspired by their university. HEIs that have initiated own voluntary programs reveal the active participation of students. To address the key challenges on the shortage of students' involvement and of activities related to sustainability, Cambodian HEIs should consider the development of a voluntary program for student engagement with four interventions.

First, HEIs need to develop a clear policy action and framework in university-community engagement for sustainability. The 6-P framework including "psychological, physical, personal, public perception, price, and policy factors" (Too & Bajracharya, 2015) is probably a useful tool for HEIs to consider. Second, HEIs need clear student engagement program for promoting sustainability in long-term period. Community service learning program may be a great choice. This program should include various topics of sustainability and interdisciplinary (Clark & Wallace, 2015).

Third, this study suggests HEIs prepare students well regarding the student engagement orientation and the sustainability awareness. According to Allen-Gil et al. (2005) and Mochizuki and Fadeeva (2010), students should be well-oriented with

sustainability concepts through curriculum before involving in the outreach activities. HEIs may consider the development of student capacity in sustainability knowledge and interdisciplinary, practical sustainability skills, and learning to develop behavior based on values (Sipos et al., 2008).

Finally, to keep students actively involved in voluntary programs and to attract more students, HEIs could find ways to increase student motivation. HEIs may think about organizing community events with an orientation of sustainability projects to students and advertising volunteer opportunities on campus and community (McKinne & Halfacre, 2008). Promotion of students' achievement rewards for performing in community involvement could be advantageous.

HEIs should consider an increase in activities of student engagement and find a way to promote students' awareness, motivation, and participation towards the sustainable self. HEIs could start with simple social activities and keep moving to community service learning. They should not wait to be invited, but they should perform as a sustainability-oriented driver. Learning to generate new knowledge to address sustainability issues is required for HEIs (Sedlacek, 2013). Furthermore, transforming students in sustainability learning by engaging them in voluntary activities is the responsibility of HEIs. Should HEIs intend to gain understanding concepts of community service learning in Cambodian context, they could consider the practical model of community learning service at RUPP and PUC.

2. Educational Policy Alternatives for Capacity Building of HEIs to Promote Sustainability in Cambodia

The key concepts of these educational policy alternatives mainstream approaches and directions of developing Cambodian HEIs' capacity in human resources, research, curriculum and instruction, partnership, and community involvement to ensure that the HEIs are ready to promote the sustainable self (as shown in Table 5.1).

The promotion of sustainability in higher education requires capacity of university people for learning to increase awareness of sustainability issues, to level up their motivation on pro-sustainability attitudes, to empower themselves for positive

belief, to have wide knowledge of sustainability principles, to shape their skilful mean for sustainability competencies, and to take personal action on behaving a sustainable lifestyle. The university people keep moving to build the sustainability capacity of other people from the government, non-governmental organizations, private sector, and local communities. This scenario would help people from academic and non-academic disciplines take an appropriate action to respond to sustainability-related issues in the country as well as in regions. To achieve this mission, HEIs need to have qualified human resources, rich academic resources, and sufficient financial resources.

In the current situation of Cambodia, HEIs need support from their parent ministries and partners to strengthen their capacity. The current "Quality Assurance Unit" at each of HEIs may deserve taking a key responsibility in considering these educational policy alternatives. In future, there should be an "Education for Sustainable Development Unit" to work with the Quality Assurance Unit to achieve the best outcomes of the educational policy alternatives.

These educational policy alternatives can be used for providing various options to the educational policy. The options indicate the needed policy action and possible resolution to the problems of capacity building of HEIs. However, each option has not been studied with cost-effectiveness analysis and cost-benefit analysis.

Table 5.1 Summary of the Educational Policy Alternatives for Capacity Building of HEIs

Educational Policy Alternatives	**Capacity Building**	**Promoting Sustainability through the Sustainable Self**
1. Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD) among stakeholders.	Capacity building of university leaders and relevant stakeholders	To increase awareness of sustainability and ESD.
2. Promote awareness of and participation in practical concepts of sustainability and	Capacity building of university people including university	To increase awareness, motivation, empowerment, knowledge, and skillful mean

ESD in Cambodian context among HEIs.	leaders, faculty members, non-academic staff, and students	regarding sustainability and ESD.
3. Strengthen capacity and boost motivation of faculty members to enhance sustainability research.	Capacity building of faculty members	To generate sustainability knowledge.
4. Ensure that curriculum and extra-curricular activities in all HEIs' academic programs are integrated with sustainability concepts.	Capacity building of university leaders and faculty members	To mobilize sustainability concepts by practicing to develop students' capacity for the sustainable self in terms of ESD.
5. Develop faculty members' capacity to enhance the sustainable self-based instruction for all academic programs at HEIs.	Capacity building of faculty members for learning	To increase students' awareness, motivation, empowerment, knowledge, skills, and practices of sustainable lifestyle.
6. Enhance the cooperation among HEIs on sustainability knowledge sharing and research development.	Capacity building of university leaders and faculty members	To enrich their awareness, knowledge, communication skills, and practices towards ESD.
7. Enhance the cooperation with governmental institutions, international governments and organizations, and relevant non-governmental organizations on the increase of sustainability research, student capacity building for sustainability, and public awareness of sustainability.	Capacity building of university people and community people	To promote their awareness of sustainability.
8. Enhance the cooperation with private sector on the promotion	Capacity building of university people and	To develop sustainability knowledge in business

of sustainability research, the student capacity improvement, and the development of sustainable business models.	businesspeople	disciplines.
9. Promote community service learning and student engagement in the voluntary activities.	Capacity building of students and community people	To increase students' awareness, motivation, empowerment, knowledge, skills, and practices of sustainable lifestyle.
10. Enrich academic resources and physical infrastructure for university people to increase their sustainability knowledge.	Capacity building of university people	To increase their awareness and knowledge of sustainability.
11. Enrich academic financial resources for utilizing in capacity building activities to promote sustainability.	Capacity Building of university people	To involve in sustainability practices by saving resources and providing sustainable services to support capacity building activities at their HEIs.

There is the presentation of the educational policy alternatives in a matrix to see how current situation of Cambodian higher education institutions can match an educational policy alternative for the implementation (as shown in Table 5.2). The requirement of each educational policy alternative varies depending on higher education institutions' human resources, personnel motivation, financial resources, physical infrastructure, academic program, and partnership.

Higher education institutions can look at their situation and characteristics and develop their existing resources to implement an educational policy alternative. Each higher education institution may choose a suitable educational policy alternative, which their situation and characteristics are potential for. This matrix can be a useful tool for higher education institutions as well as the Ministry of Education, Youth, and Sport to have an idea of what educational policy alternatives suit them the best.

Table 5.2 Educational Policy Alternatives and Situation of Higher Education Institutions in Cambodia

Policy Alternatives	Human Resources						Motivation			Financial Resources		Physical Infrastructure					Ac. Pro	Partnership					
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1.	✓	✓		✓						✓			✓	✓				✓	✓	✓	✓	✓	✓
2.	✓	✓		✓	✓	✓				✓			✓	✓	✓			✓	✓	✓	✓	✓	✓
3.			✓				✓		✓	✓	✓	✓				✓				✓	✓		
4.		✓		✓						✓		✓					✓						
5.		✓						✓		✓		✓											
6.	✓	✓				✓													✓				
7.	✓	✓	✓								✓									✓	✓	✓	
8.	✓	✓	✓								✓												✓
9.		✓				✓															✓	✓	
10.		✓									✓								✓				
11.	✓	✓	✓	✓																			

Educational Policy Alternatives

1. Promote awareness of Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD) among stakeholders

2. Promote awareness of and participation in practical concepts of sustainability and ESD in Cambodian context among HEIs.

3. Strengthen capacity and boost motivation of faculty members to enhance sustainability research.

4. Ensure that curriculum and extra-curricular activities in all HEIs' academic programs are integrated with sustainability concepts.

5. Develop faculty members' capacity to enhance the sustainable self-based instruction for all academic programs at HEIs.

6. Enhance the cooperation among HEIs on sustainability knowledge sharing and research development.

7. Enhance the cooperation with governmental institutions, international governments and organizations, and relevant non-governmental organizations on the increase of sustainability research, student capacity building for sustainability, and public awareness of sustainability.

8. Enhance the cooperation with private sector on the promotion of sustainability research, the student capacity improvement, and the development of sustainable business models.

9. Promote community service learning and student engagement in the voluntary activities.

10. Enrich academic resources and physical infrastructure for university people to increase their sustainability knowledge.

11. Enrich academic financial resources for utilizing in capacity building activities to promote sustainability.

Situation and Characteristics of Higher Education Institutions

Here are some situation and characteristics of Cambodian higher education institutions that indicate their potential to implement the educational policy alternatives. The selected situation and characteristics include human resources, personnel motivation, financial resources, facilities and physical infrastructure, and partnership of higher education institutions.

Human Resources

A. University leaders who develop their new knowledge and skills (regarding sustainability). University leaders need to have knowledge and skills to perform their leadership role in sustainability in higher education.

B. Faculty members who have PhD and sustainability knowledge and skills. As key human resources, faculty members need sufficient capacity for promoting sustainability.

C. Researchers/ Faculty members with research capacity.

D. Resource persons/ Experts in environment discipline, sustainability, and education for sustainable development.

E. Non-academic staff who are motivated to attend awareness campaigns and other sustainability-related activities.

F. Students who involve in the voluntary activities. Higher education institutions need to have a group/groups of volunteer students who are ready to participate in local community activities.

Motivation

G. Research awards for outstanding faculty members/researchers. Higher education institutions need to motivate their faculty members to engage in research activities regarding sustainability issues.

H. Teaching awards for outstanding faculty members. Higher education institutions can deploy their existing "Lecturer of the Year" concept to include the ESD concepts in the evaluation criteria.

I. Professional ranking, or providing promotion opportunities for faculty members who have publications.

Financial Resources

J. Budget allocation for supporting capacity building activities. Higher education institutions need to prepare some budget for organizing training courses and workshops for increase sustainability knowledge and for supporting personnel to attend international training or conferences.

K. Budget allocation for supporting research activities. Higher education institutions need to have some research budget to increase their research activities.

Facilities and Physical Infrastructure

L. Library with up-to-date books and journals in various disciplines/regarding sustainability.

M. Website and social network which keeps updating news of university/institute campus activities.

N. Suitable spaces for conducting a meeting and workshop for all personnel.

O. Suitable campus that they can grow trees towards a green campus.

P. Research center for various disciplines in the operation.

Academic Programs

Q. Core course on environment and sustainability in the Foundation Year Program. Higher education institutions can integrate the core course regarding sustainability into their existing Foundation Year Program, for Bachelor's Program.

Partnership

R. Building a partnership with mass media agencies for sharing their new knowledge or operating their radio/TV programs regarding sustainability-related topics.

S. The cooperation with other higher education institutions on student capacity building, or joint research projects.

T. The cooperation with the governmental institutions on student capacity building though study visit, or research advancement through research grant.

U. The cooperation with international governments or organizations on research advancement through research grant.

V. The cooperation with non-governmental organizations on student capacity building through internship, or joint research project.

W. The cooperation with private sector on student capacity building through internship, or research advancement regarding green business and cooperate social responsibility.

CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

The research entitled "Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia" is summarized as follows.

Research Objectives

This research aims (1) to analyze the capacity building of Cambodian higher education institutions to promote sustainability; and (2) to propose educational policy alternatives for capacity building of Cambodian higher education institutions to promote sustainability.

Research Methodology

For the first objective, "to analyze the capacity building of Cambodian higher education institutions to promote of sustainability", the study employed the document study, survey, and interview. First, document study was to gain insights into Cambodian universities' capacity in human resources, research, curriculum and instructions, partnership development, and community involvement about sustainability. Second, the researcher conducted the survey questionnaire with 83 university leaders, 176 faculty members, and 720 students from July to September 2015. Third, there were in-depth interviews with 15 university leaders, 16 faculty members, and five experts between July and September 2015.

To achieve the second objective "to propose educational policy alternatives for capacity building of higher education institutions to promote sustainability in Cambodia," the researcher took three steps. Firstly, educational policy alternatives were formulated by benchmarking the existing policies with research findings on capacity building of higher education institutions to promote sustainability. Secondly, the researcher interviewed the five experts to have a direction for developing the draft of educational policy alternatives. Thirdly, the focus group discussion (FGD) had been conducted twice to improve the draft of the educational policy alternatives.

1. Conclusions

The capacity of Cambodian HEIs for sustainability appears to be at a critical level. If compared to other HEIs in region, Cambodian HEIs' capacity can be categorized in the bottom list and need an urgent action. HEIs need to initiate a mechanism for integrating the sustainability concept into their existing system. This initiative could happen to build their capacities in enhancing their human resources, research, curriculum and instruction, higher education partnership, and community involvement.

The majority of HEIs lacked academics who held PhD degree and had the capacity in sustainability. Only 7.36 percent of higher education personnel had PhD education. Less than half of faculty members had attended training and academic meetings related to sustainability themes. Above 80 percent of university leaders and faculty members revealed their need of high academic qualification and professional development in sustainability knowledge. Primarily, they need to increase their awareness of the Sustainable Development Goals (SDGs) and Education for Sustainable Development (ESD). Increasing their awareness and developing their knowledge, skills, and attitudes can be done by engaging them in research, training, academic meetings, and network as a community of practice.

Sustainability research capacity in Cambodian HEIs appears to have barriers of the limited capacity and low motivation of faculty members, the limited research areas of sustainability, and the shortage of research budget. The major research projects were restricted to the agriculture, environment, and community development disciplines because they were in the interest of project donors. Research budget allocation was absent at the majority of HEIs. HEIs need to increase the capacity and motivation of faculty members to promote research to generate new scientific knowledge related to sustainability

Curriculum and instruction of Cambodian HEIs appear to have the limited concern with Education for Sustainable Development. Academic programs in most HEIs largely related to the business and economic disciplines whereas those of the environment discipline were a few. Each curriculum in all academic disciplines needs developing in a great attention to thinking competencies, interpersonal competencies,

value education, and soft skills to ensure the right ways of student development towards the sustainable self, which helps lead students from the awareness to the action. Meanwhile, faculty members need the capacity to develop and apply eco-pedagogy into their instruction.

The collaboration between HEIs and governmental institutions, international organizations, and non-governmental organizations happened to focus on research development and community development. HEIs revealed their collaboration with academic institutions (other HEIs), governmental institutions, NGOs, and businesses on capacity building of students through student exchange programs, study visits, voluntary activities, internship, and workshop respectively. However, most HEIs had not shown the results of their partnership. There was a poor partnership among local HEIs. To make a stronger impact, HEIs should collaborate with their partners to engage sustainability-oriented students in public campaigns and community activities.

HEIs' engagement in community activities appears to be significant on student participation under the HEIs' administration. Only a few HEIs had the community service learning program for their students to involve in community outreach activities. In general, the majority of students seem to be apart from any community involvement activities with sustainability-related themes. Students should have opportunities to learn more about sustainability concepts while sharing those concepts with villagers. The sustainable-oriented students would be influential to their working environment and local communities in developing a sustainable lifestyle. The greater number of students is educated with the sustainable self, the greater number of people they can help to have a better life.

The educational policy alternatives contain the key concepts of building HEIs' capacity in human resources, research, curriculum and instruction, partnership, and community involvement to promote sustainability by educating people with the sustainable self. Primarily, university people including university leaders, academic staff, non-academic staff, and students need to have sustainability literacy towards the sustainable self concept. They should learn to increase awareness of sustainability issues, to level up their motivation on pro-sustainability attitudes, to empower themselves for positive belief, to have a wide knowledge of sustainability principles,

to shape their skillful mean for sustainability competencies, and to take personal action on behaving a sustainable lifestyle. As an ultimate goal, university people help engage other people in the public sector, private sector, civil society, and communities in the sustainable self.

2. Recommendations for Practical Implication

Higher education institutions can take the following recommendation to consider for their building capacity to promote sustainability.

First, increasing key personnel and other university people's awareness and developing their knowledge, skills, and attitudes can be done by engaging them in research, training, academic meetings, and network as a community of practice. The themes of those activities should relate to sustainability-related topics.

Second, as researchers, faculty members should be engaged in teamwork and then work cooperatively towards teaming attitude to learning to strengthen their research capacity. Providing research awards and incentives can be an encouraging sign to attract faculty members' research involvement.

Third, each curriculum in all academic disciplines needs developing in the considerable attention to thinking competencies, interpersonal competencies, value education, and soft skills to ensure the right ways of student development towards the sustainable self, which helps lead students from the awareness to the action. Meanwhile, faculty members need the capacity to develop and apply eco-pedagogy into their instruction.

Fourth, higher education institutions can enrich their existing Foundation Year Program by including core courses as "Introduction to Sustainability", "Environment and Development", and "Introduction to the Sustainable Self". Otherwise, these core courses can be integrated into both undergraduate and graduate programs with at least three credit points. This approach would help increase students' awareness and motivation levels from all disciplines.

Fifth, higher education institutions should consider the "top-up education" approach to upgrade students in Associate Degree to complete Bachelor's Degree in sustainability-related disciplines such as environmental science, social sustainability,

economic sustainability. Students from various disciplines (including vocational education) should be provided an opportunity to receive further education to become sustainability-oriented people. This mechanism would help increase network and alliance for promoting sustainability.

Sixth, higher education institutions can develop sandwich programs of post-graduate degree in sustainability-related disciplines due their limited faculty members' capacity and academic resources. The sandwich programs with partnered universities can include two approaches to building students' capacity through coursework and research. For instance, the sandwich programs could be developed in the stage of (1) students' study in Cambodian HEIs and then foreign universities; and (2) students' study in foreign universities, then Cambodian HEIs, and finally foreign universities.

Seven, to make a stronger impact, higher education institutions should collaborate with their partners such as international governments, private sector, and non-governmental organizations to promote public awareness campaigns and community activities regarding environment and sustainability. There should be a consideration of building "sister organization" partnership with relevant foreign stakeholders to strengthen the capacity of Cambodian higher education institutions.

Eighth, student engagement in voluntary activities in local communities or community service learning help students learn to practice the sustainable self concept. Higher education institutions should promote opportunities for students to learn more about sustainability concepts while sharing those concepts with villagers.

Nine, to speed up the achievement of SDGs, higher education institutions should promote public capacity building through short courses regarding sustainable lifestyles. Some of the short course themes may relate to green lifestyle, green home manual, dealing with conflict, social responsibility, and growing together. This non-degree approach takes less time, but may provide more impact to a greater population at all ages.

Tenth, the Ministry of Education, Youth, and Sport should encourage higher education institutions to compete for awards of green campus, green activities,

ecopedagogy, and education for sustainable development concepts. This encouragement program could stimulate higher education institutions' attention and involvement. The next step, there should be cooperative competitions for awards of the "sustainable self" concepts.

All in all, everyone from the public sector, private sector, civil society organizations, and individuals can potentially participate in developing their sustainable lifestyle towards creating a sustainable society. Everyone can begin with a change towards ecological friendly behavior. Higher education institutions should find out how to inspire everyone to play their roles like a multiplication factor to share the green lifestyle concepts with more people. Promoting "what one (I) can do" concept would be more effective than "what others (they) can do" concept.

3. Recommendations for Further Research

The next studies could improve this research work by considering either the capacity building of higher education institutions, and the educational policy alternatives.

There should be further studies to elaborate each capacity of higher education institutions into manual guides for promoting sustainable universities. Those manual guides may relate to self-oriented personnel, sustainability-oriented curriculum manual, and sustainable community.

These educational policy alternatives were focused on concepts and possible resolution to the capacity building of higher education at the stage of policy formulation. To provide more comprehensive characteristics of the educational policy alternatives, there should be further studies on cost-effective analysis and cost-benefit analysis of each educational policy alternative. Further studies should relate to the implementation of these educational policy alternatives to check if they are practical and provide significant impacts. Those future studies could help policy-decision makers have an evidence to choose the most appropriate educational policy for capacity building of higher education institution to promote sustainability in Cambodia.

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APPENDIX

Appendix 1. List of Higher Education Institutions in Cambodia

No	University/Institute	Contact Persons	Parent Ministry
Phnom Penh			
1	Royal University of Phnom Penh (1980) http://www.rupp.edu.kh/	Mr. VENG Chhang	MoEYS, (Public)
2	Royal University of Law and Economics (2003) http://www.rule.edu.kh/ruledocs/	Mr. Chantra	MoEYS, (Public)
3	National University of Management (2004/1983) http://www.num.edu.kh/	Dr. HOR Peng	MoEYS, (Public)
4	Institute of Technology of Cambodia (1981) http://itc.edu.kh/	(Head of Adm Office)	MoEYS, (Public)
5	National Institute of Education http://www.nie.edu.kh/pages/	Dr. Sovanna	MoEYS, (Public)
6	Norton University (1997) http://norton-u.com/en/	Mr. Sokheang	MoEYS, (Private)
7	Build Bright University (2000) http://www.bbu.edu.kh/index.php	Dr. DY Davuth	MoEYS, (Private)
8	Panasastra University of Cambodia (2002) http://www.puc.edu.kh/	Mr. KOL Chanrith	MoEYS, (Private)
9	Phnom Penh International University (2006) http://www.ppiu.edu.kh/	Mr. KHENG Chin	MoEYS, (Private)
10	Chamroeun University of Poly-Technology (2002) http://www.cup.edu.kh/	N/A	MoEYS, (Private)
11	Cambodian University of Specialties (2004) http://cus.edu.kh/	Mr. KHON Sokha	MoEYS, (Private)
12	International University (2002) http://www.iu.edu.kh/		MoEYS, (Private)
13	Cambodian Mekong University (2003) http://www.mekong.edu.kh/		MoEYS, (Private)
14	University of Cambodia (2003) http://www.uc.edu.kh/	Mr. SAM Sophorn	MoEYS, (Private)
15	Western University (2003) http://www.western.edu.kh/index.html	Mr. CHOEK Sophat	MoEYS, (Private)
16	IIC University of Technology (2008) http://www.iic.edu.kh/		MoEYS, (Private)
17	University of Khemarak (2004) http://www.khemarak.edu.kh/?page=&lg=en	Dr. SOK Touch	MoEYS, (Private)
18	Asia-Europe University (2005/2003) http://www.aeu.edu.kh/	Dr. Chanthuch	MoEYS, (Private)

No	University/Institute	Contact Persons	Parent Ministry
19	Human Resources University (2005) http://www.hru.edu.kh/	Mr. Chanthoeun	MoEYS, (Private)
20	University of Puthisastra (2007/ 1999) http://www.puthisastra.edu.kh/		MoEYS, (Private)
21	Chenla University (2007) http://www.clu.edu.kh/		MoEYS, (Private)
22	Lim Kokwin University (2008) http://www.limkokwing.edu.kh/	Mr. Sambath	MoEYS, (Private)
23	Panhacheat University (2009) http://www.pcuuniversity.com/kh/		MoEYS, (Private)
24	Zaman International University (2010) http://www.zamanu.edu.kh/		MoEYS, (Private)
25	Cambodia International University (2010) http://www.camiu.edu.kh/		MoEYS, (Private)
26	BELTI International University (2012) http://www.beltei.edu.kh/biue/	Mr. NGUN Rathana	MoEYS, (Private)
27	Vanda Institute (2001) http://www.vanda.edu.kh/	Mr. KHENG Chin	MoEYS, (Private)
28	SETEC Institute (2002) http://www.setecu.com/setecu/index.php		MoEYS, (Private)
29	Asia Sachak Development Institute (2002) http://www.sadi.edu.kh/		MoEYS, (Private)
30	Education Institute of Cambodia (2003), PP http://edi-cambodia.org/		MoEYS, (Private)
31	Business Education Institute (2006), PP http://www.ibe.edu.kh/ (Unavailable)		MoEYS, (Private)
32	ICS Institute (2009/2004), PP http://www.ics.edu.kh/ (English Institute)		MoEYS, (Private)
33	CamEd Business School (2010), PP http://www.cam-ed.com/		MoEYS, (Private)
34	Institute of Specialized Finance and Economics (2011), PP http://isef.edu.kh/		MoEYS, (Private)
35	American Intercon Institute (2008)*, PP http://www.aii.edu.kh/	Mr.KEO Lundi	MoEYS, (Private)
36	Financial Institute of Cambodia (2010)*, PP http://www.fic.edu.kh/		MoEYS, (Private)
37	Intered Institute (2004), PP http://intered-institute.com/IEI.html	Ms. ChanOmra	MoEYS, (Private)
38	Sineru Institute (2012), PP http://www.sineru.com/		MoEYS, (Private)
39	Asian Institute of Science (2012), N* http://ais-edu.com/		MoEYS, (Private)
40	Phnom Penh Institute of Nursing and Paramedical Sciences (2012), N* http://ppinps.com/		MoEYS, (Private)

No	University/Institute	Contact Persons	Parent Ministry
41	ST Clemense Institute (2012) http://www.stclements.edu.kh/		MoEYS, (Private)
42	Bonna Institute of Cambodia (2013), N* (Unavailable)		MoEYS, (Private)
43	Learning for Success Institute (2013) https://www.facebook.com/LearningForSuccessInstitute		MoEYS, (Private)
44	Phnom Penh International Institute of the Arts (2013) http://www.ppiia.org/		MoEYS, (Private)
45	National Institute of Business (1985), PP http://www.nib.edu.kh/		MoLVT (Public)
46	Preah Kossomak Polytechnic Institute (2001/1965), PP http://www.ppiedu.com/	Adm	MoLVT (Public)
47	Cambodia-India Entrepreneurship Development Centre (2006), https://www.facebook.com/ciedc		MoLVT (Public)
48	National Technical Training Institute (NTTI) (1999), PP http://www.ntti.edu.kh/en/?lang=km	Mr. Vitou	MoLVT (Public)
49	National Polytechnic Institute of Cambodia (NPIC), 2005, PP http://www.npic.edu.kh/	Mr. HIN Chandara	MoLVT (Public)
50	PCL Management Institute (2010)*, (Unavailable) https://www.facebook.com/PCLInstitute		MoEYS, (Private)
51	Raffle International College (2010), (Unavailable) http://www.raffles-international-college.edu.kh/		MoEYS, (Private)
52	Electrical Training Center of Cambodia (Unavailable website)		MoLVT (Private)
53	Neak Pon Business Institute (Unavailable website)		MoLVT (Private)
54	Institute of New Khmer (INK), PP, 2007 https://www.facebook.com/ink.edu.kh		MoLVT (Private)
55	Cambodian Youth's Future Institute (CYFI), PP, (facebook)		MoLVT (Private)
56	Cambodia International Cooperation Institute (Under construction)		MoLVT (Private)
57	Student Development Institute https://www.facebook.com/StudentDevelopmentInstitute		MoLVT (Private)
58	Belton International Institute (Unavailable website)		MoLVT (Private)
59	Donbosco Vocational Training Centre http://donboscokhmer.org/ and http://www.dbts.info/en/		MoLVT (Private)
60	University of Health Science (UHS), 1979 http://uhs.edu.kh/internet/uhswebsite4/		MoH (Public)
61	National Institute of Public Health (NIPH), 1997 http://www.niph.org.kh/niph/		MoH (Public)
62	Royal University of Fine Arts (RUFA), 1988/1965 http://www.rufa.edu.kh/		MoFAC (Public)

No	University/Institute	Contact Persons	Parent Ministry
63	Royal University of Agriculture (RUA), 1964 http://www.rua.edu.kh/	Prof. Dr. SENG Mom	M. Agriculture
64	Prek Leap National School of Agriculture, 2002 http://www.pnsa.edu.kh/		M. Agriculture
65	National Defense University (NDU), 2006/1979 http://ndu.edu.kh/en		M. Defense
66	Health Science Institute of Royal Cambodian Army Force, (Unavailable)		M. Defense
67	Thmat Pong School of Army, 2003/1979) (Unavailable)		M. Defense
68	Preah Sihanouk Raja Buddhist University, 2006/1960 http://www.sbu.edu.kh/		M. Religious Affairs
69	Preah Sihamoni Buddhist University (PSBU), 2007 http://www.bkssolidarity.com/		M. Religious Affairs
70	Economics and Finance Institute (EFI) http://efi.mef.gov.kh/		M. Economics and Finance
71	Police Academy of Cambodia (PAC) http://pac.edu.kh/		M. Interior
72	Cambodian Marine Institute (CMI), 2009 (Unavailable website)		M. Public Transportatio n
73	Royal Academy of Cambodia (RAC), 1999 http://www.rac-academy.edu.kh/		Council Ministers
74	Center for Banking Studies, 1999 (facebook)		National Bank of Cambodia
75	Industrial Technical Institute (ITI), 1985 https://www.facebook.com/iti.english.page		MoLVT (Public)
76	Institute of Economic Development, 2009 (Unavailable website)		MoLVT (Private)
77	National Institute of Electrical Science, 2011 (facebook)/ http://www.edc.com.kh/		M. Mines and Energy
78	National Institute of Social Affairs, 2011 http://www.nisa-edu.gov.kh/		M. Social Affairs
79	Chea Sim University of Kamchaymear (1993) http://www.csuk.edu.kh/		MoEYS, (Public)
80	Angkor City Institute (2002), Prei Veng https://www.facebook.com/AngkorCityInstitute		MoEYS, (Private)
81	Khemarasastra Institute (2008), Prei Veng (Unavailable website)		MoEYS, (Private)
82	Business Institute of Cambodia, Prey Veng, 2006 (Unavailable website)		MoLVT (Private)
83	Svay Rieng University (2005) http://www.sru.edu.kh/	Dr. SEREY Marady	MoEYS, (Public)
84	Institute of Sociology and Technology (2007), Svay Rieng (Unavailable on website)		MoEYS, (Private)

No	University/Institute	Contact Persons	Parent Ministry
85	Kampongcham University (2013) (Unavailable on website)		MoEYS, (Private)
86	Samech Techo Hun Sen Buddhist University, Kg Cham,2011 (Unavailable on website)		M. Religious Affairs
87	Svay Rieng University (2005) http://www.sru.edu.kh/	Dr. SEREY Marady	MoEYS, (Public)
88	Bethel Institute (2008), Kg Cham (Unavailable on website)		MoEYS, (Private)
89	Kompong Cham National School of Agriculture, 1995 (Unavailable on website)		M. Agriculture
90	University of Battambong (2007) http://www.ubb.edu.kh/	Dr. SAM Rany	MoEYS, (Public)
91	University of Management and Economics (2000/2006) http://www.ume.edu.kh/	Mr. Sopheap	MoEYS, (Private)
92	Polytechnic Institute of Battambang Province (PIB), 2007, http://www.pib.edu.kh/		MoLVT (Public)
93	Dewey International University (2011), BB http://www.diu.edu.kh/	Mr. BIN Thoeun	MoEYS, (Private)
94	Angkor University (2004), Siem Reap www.angkor.edu.kh	Mr. TITHSOTH Y Dianorin	MoEYS, (Private)
95	South-East Asia University (2006), Siem Reap http://www.usea.edu.kh/en/index.php	Mr. SIEN Sovanna Mr. ROS Bunthy	MoEYS, (Private)
96	Meanchey University (2007) http://www.mcu.edu.kh/	Mr. CHHIV Sarith	MoEYS, (Public)
97	Institute of Management and Development (2006), Porsat, http://www.imd.edu.kh/		MoEYS, (Private)
98	Bright Hope Institute (2007), Kg Chhnang http://www.brighthopeinstitute.org/		MoEYS, (Private)
99	Saint Paul Institute (2009), Takeo (Unavailable on website)		MoEYS, (Private)
100	University of Angkor Khemara (2008) http://www.aku.education/index.php/en/	Mr. NOU Chinda	MoEYS, (Private)
101	Kampot Institute of Polytechnic (KIP), 2009 (Unavailable on website)	Mr. CHHOY Mony Pheaktra	MoLVT (Public)
102	Life University (2007), Sihanouk http://www.lifeun.edu.kh/	Mr. LY Rathana Adm	MoEYS, (Private)
103	Khmer University of Technology and Management (2008) http://kutm.edu.kh/kh/index.php	Mr. HONG Pituo	MoEYS, (Private)
104	National Institute of Army, Kg Speu, 2009 (Unavailable on website)		M. Defense
105	Technical Army Institute of Techo Hun Sen, 2010 (Unavailable on website)		M. Defense

Appendix 2. Questionnaire for University Leader

QUESTIONNAIRE

(For Rector or Vice-Rector, Director/Vice-Director, Dean/Vice-Dean)

Research Title:
"Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions
to Promote Sustainability in Cambodia"

Research Objective for this Questionnaire:
To analyze capacity building of higher education institutions to promote sustainability in Cambodia

Sustainability/Sustainable Development is a goal/process to achieve sustainable future through balanced growth of economic/employment, environmental/ecological, and social-cultural/equity aspects (Edwards, 2005; Murray, 2011). (ការអភិវឌ្ឍន៍ប្រកបដោយចិរភាព គឺជាគោលដៅ/កិច្ចដំណើរការឆ្ពោះទៅរកអនាគតគង់វង្សយូរអង្វែងដោយធានាឲ្យមានការរីកចំរើនប្រកបដោយសមតុល្យលើទិដ្ឋភាព សេដ្ឋកិច្ច/ការងារ បរិស្ថាន/អេកូឡូស៊ី និង សង្គម-វប្បធម៌/សមភាព។)

Development Partnership in higher education is a development co-operation between higher education institutions and other organizations/agencies such as governmental agencies, international organizations, non-governmental organizations, and private sector (Baily & Dolan, 2011). This development partnership is aimed to collaborate to deal with sustainability issues both on campus and in local communities.
(ភាពជាដៃគូរអភិវឌ្ឍន៍ក្នុងវិស័យឧត្តមសិក្សា គឺជាកិច្ចសហការអភិវឌ្ឍន៍រវាងគ្រឹះស្ថានឧត្តមសិក្សានានានឹងបណ្តាស្ថាប័នផ្សេងៗ រួមមាន
ស្ថាប័នរដ្ឋ អង្គការអន្តរជាតិ អង្គការក្រៅរដ្ឋាភិបាល និងវិស័យឯកជន។ ភាពជាដៃគូរអភិវឌ្ឍន៍នេះមានគោលបំណងសហការលើកិច្ចការពាក់ព័ន្ធនឹងបញ្ហាការអភិវឌ្ឍន៍ប្រកបដោយចិរភាពទាំងក្នុងបរិវេណគ្រឹះស្ថានឧត្តមសិក្សានិងក្នុងសហគមន៍មូលដ្ឋានផង។)

Community Involvement is a form of higher education institutions' outreach activities at local communities (Bringle & Hatcher, 2002) to raise people's awareness and encourage their practices to have a sustainable lifestyle.
(ការចូលរួមចំនែកក្នុងសហគមន៍ គឺជាទម្រង់សកម្មភាពចុះជួយមូលដ្ឋានរបស់គ្រឹះស្ថានឧត្តមសិក្សានៅតាមសហគមន៍មូលដ្ឋានទាំងឡាយ ដើម្បីលើកកម្ពស់ការយល់ដឹងរបស់ប្រជាជន និងជំរុញទឹកចិត្តឲ្យពួកគាត់ប្រតិបត្ត សំដៅទៅរករបៀបរស់នៅប្រកបដោយ

Please indicate your level of agreement with the following statements by circling only one number per line about each statement. Your information/ responses will be kept strictly confidential and will be for this research study

1 = Strongly Disagree 2 = Disagree 3 = Neither Agree nor Disagree
4= Agree 5 = Strongly Agree

No	To promote education for sustainability, it is necessary for my university/institute …	Response				
	Qualified Personnel					
1	… that university leaders further their higher education to Doctoral Degree.	1	2	3	4	5
2	… that faculty members further their higher education to Doctoral Degree.	1	2	3	4	5
3	… increase university leaders' sustainability-related knowledge.	1	2	3	4	5
4	… increase faculty members' sustainability-related knowledge.	1	2	3	4	5
	Research					
5	… make research culture relevant to sustainability issues.	1	2	3	4	5
6	… publish research articles related to sustainability in scholar journals.	1	2	3	4	5
7	… share research results related to sustainability with communities and/or other institutions through presentation, newsletter, and media.	1	2	3	4	5
8	… allocate research funding on its own budget.	1	2	3	4	5
9	… seek research funding from other institutions.	1	2	3	4	5
	Curriculum and Instruction					
10	… integrate sustainability concepts into current curriculum.	1	2	3	4	5
11	… organize extra-curricular activities related to sustainability to raise students' awareness.	1	2	3	4	5
12	… teach a sustainability-related course to students in all majors.	1	2	3	4	5
13	… instruction includes learning projects/tasks related to local community development.	1	2	3	4	5
	Development Partnership					
14	… seek academic assistance from international organizations.	1	2	3	4	5
15	… seek academic assistance from non-governmental organizations.	1	2	3	4	5
16	… provide technical assistance about sustainability to non-governmental organizations.	1	2	3	4	5
17	… seek sponsorship for academic assistance from the private sector.	1	2	3	4	5

No	To promote education for sustainability, it is necessary for my university/institute …	Response				
18	… provide academic assistance about sustainability to private companies.	1	2	3	4	5
19	… seek development assistance from governmental agencies to cooperate for dealing with sustainability issues.	1	2	3	4	5
20	… provide academic assistance about sustainability to governmental agencies.	1	2	3	4	5
21	… seek academic assistance from other HEIs	1	2	3	4	5
22	… provide academic assistance to other HEIs.	1	2	3	4	5
	Community Involvement					
23	… promote students' community service-learning in addressing sustainability issues.	1	2	3	4	5
24	… students participate in social activities related to sustainability.	1	2	3	4	5
25	… faculty members participate in social activities related to sustainability.	1	2	3	4	5
26	… learn from local communities to develop knowledge related to sustainability.	1	2	3	4	5

Further Comments

Please share your comments on how to build capacity of your university/institute to promote sustainability on campus and in local communities (if any). You can write your comments in Khmer or English.

Qualified Personnel

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Research

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Curriculum and Instruction

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Development Partnership

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Community Involvement
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Thank you very much for your time and cooperation.

Appendix 3. Questionnaire for Faculty Members

ក្រមួនសំណួរ (QUESTIONNAIRE)

(សម្រាប់គ្រូបង្រៀន/សាស្ត្រាចារ្យ)

ប្រធានបទស្រាវជ្រាវ

"សំណើជំរើសនៃគោលនយោបាយអប់រំសម្រាប់ការកសាងសមត្ថភាពរបស់គ្រឹះស្ថានឧត្តមសិក្សា ដើម្បីលើកកម្ពស់ការអភិវឌ្ឍប្រកបដោយនិរន្តរភាព/ចីរភាពនៅកម្ពុជា"

"Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia"

Definition of Key Terms

Sustainability/Sustainable Development is a goal/process to achieve sustainable future through balanced growth of economic/employment, environmental/ecological, and social-cultural/equity aspects.

(ការអភិវឌ្ឍន៍ប្រកបដោយចិរភាព/និរន្តរភាព គឺជាគោលដៅ/កិច្ចដំណើរឆ្ពោះទៅរកអនាគតគង់វង្សយូរអង្វែងដោយធានាឲ្យមានការរីកចម្រើនប្រកបដោយសមតុល្យលើទិដ្ឋភាព សេដ្ឋកិច្ច/ការងារ បរិស្ថាន/អេកូឡូស៊ី និង សង្គម-វប្បធម៌/សមភាព។)

Development Partnership in higher education is a development co-operation between higher education institutions and other organizations/agencies such as governmental agencies, international organizations, non-governmental organizations, and private sector. This development partnership is aimed to collaborate to deal with sustainability issues both on campus and in local communities.

(ភាពជាដៃគូរអភិវឌ្ឍន៍ក្នុងវិស័យឧត្តមសិក្សា គឺជាកិច្ចសហការអភិវឌ្ឍន៍រវាងគ្រឹះស្ថានឧត្តមសិក្សានានានឹងបណ្តាស្ថាប័នផ្សេងៗ រួមមានស្ថាប័នរដ្ឋ អង្គការអន្តរជាតិ អង្គការក្រៅរដ្ឋាភិបាល និងវិស័យឯកជន។ ភាពជាដៃគូរអភិវឌ្ឍន៍នេះមានគោលបំណងសហការលើកិច្ចការពាក់ព័ន្ធនឹងបញ្ហាការអភិវឌ្ឍប្រកបដោយចីរភាពទាំងក្នុងបរិវេណគ្រឹះស្ថានឧត្តមសិក្សានិងក្នុងសហគមន៍មូលដ្ឋានផង។)

Community Involvement is a form of higher education institutions' outreach activities at local communities (Bringle & Hatcher, 2002) to raise people's awareness and encourage their practices to have a sustainable lifestyle.

(ការចូលរួមចំណែកក្នុងសហគមន៍ គឺជាទម្រង់សកម្មភាពចុះជួយមូលដ្ឋានរបស់គ្រឹះស្ថានឧត្តមសិក្សានៅតាមសហគមន៍មូលដ្ឋានទាំងឡាយ ដើម្បីលើកកម្ពស់ការយល់ដឹងរបស់ប្រជាជន និងជំរុញទឹកចិត្តឲ្យពួកគាត់អនុវត្តតាមសំដៅទៅរកវប្បធម៌របស់នៅប្រកបដោយចីរភាព។)

Baily, F., & Dolan, A. M. (2011). The meaning of partnership in development: Lessons for development education. *Policy & Practice: A Development Education Review*(13), 30-47.
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កម្រងសំណួរ

(សម្រាប់គ្រូបង្រៀន/សាស្ត្រាចារ្យ)

សូមបញ្ជាក់ថា យល់ព័ត៌មានដែលលោកអ្នកផ្តល់ជូននឹងរក្សានូវភាពសម្ងាត់យ៉ាងហ្មត់ចត់។

1. បង្រៀននៅមហាវិទ្យាល័យ (Faculty/College): .....

2. បង្រៀននិស្សិតកម្រិត 1) ☐ បរិញ្ញាបត្រ 2) ☐ បរិញ្ញាបត្រជាន់ខ្ពស់ 2) ☐ បណ្ឌិត

3. ចំនួននិស្សិតដែលលោកអ្នកបង្រៀនជាមធ្យមក្នុងមួយឆ្នាំសិក្សា (រយៈពេល 5 ឆ្នាំចុងក្រោយ) មាន .....នាក់

I. សូមឆ្លើយសំណួរខាងក្រោមដោយគូសគូសង្វង់ជុំវិញលេខក្នុងប្រអប់ចម្លើយតប។

1 = មិនធ្លាប់	2 = កម្រ	3 = ជួនពេលខ្លះ	4 = ជាញឹកញាប់	5 = ជានិច្ចកាល
(Never)	(Rarely)	(Sometimes)	(Very Often)	(Always)

1. តើលោកអ្នកចូលរួមវគ្គបំប៉ន កិច្ចប្រជុំ សន្និសីទ ឬសិក្ខាសាលា (training, academic meetings, conferences, seminar) ទាក់ទិននឹងប្រធានបទខាងក្រោមញឹកញាប់កម្រិតណា?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហដើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់កម្រៃ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

2. ក្នុងរយៈពេល5 ឆ្នាំចុងក្រោយ លោកអ្នកបានធ្វើការស្រាវជ្រាវ (Academic Research)លើប្រធានបទខាងក្រោមចំនួនប៉ុន្មាន ?
(សូមបញ្ជាក់ចំនួនប្រធានបទដែលបានសិក្សាស្រាវជ្រាវ បើមាន)

	ប្រធានបទស្រាវជ្រាវ (Topics)	គ្មានទេ (N/A)	មានចំនួនប្រធានបទ Number of Research
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	☐	.....
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	☐	.....
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	☐	.....
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	☐	.....
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	☐	.....
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	☐	.....
7)	សមភាពរវាងយេនឌ័រ (Gender Equality)	☐	.....
8)	សិទ្ធមនុស្ស (Human Right)	☐	.....
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	☐	.....
10)	កិច្ចសហជើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	☐	.....
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	☐	.....
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	☐	.....
13)	ផលិតកម្ម និង ប្រាក់កម្រៃ (Production and Profits)	☐	.....
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	☐	.....
15)	បច្ចេកវិទ្យា (Technology)	☐	.....
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	☐	.....
17)	ផ្សេងទៀត:		....

3. តើលោកអ្នកយកខ្លឹមសារទាក់ទងនឹងប្រធានបទខាងក្រោមទៅបង្រៀនឬពិភាក្សាក្នុងថ្នាក់រៀនញឹកញាប់កម្រិតណា ?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពរវាងយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហជើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5

	ប្រធានបទ (Topics)	ចម្លើយតប				
13)	ផលិតកម្ម និង ប្រាក់ចំណែ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

4. តើលោកអ្នកចូលរួមក្នុងសកម្មភាពអភិវឌ្ឍន៍ក្នុងសហគមន៍មូលដ្ឋានទាក់ទងនឹងប្រធានបទខាងក្រោមញឹកញាប់កម្រិតណា?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពរវាងនារី (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហដើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់ចំណែ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

	ប្រធានបទ (Topics)	ចម្លើយតប				
13)	ផលិតកម្ម និង ប្រាក់ចំណែ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

4. តើលោកអ្នកចូលរួមក្នុងសកម្មភាពអភិវឌ្ឍន៍ក្នុងសហគមន៍មូលដ្ឋានទាក់ទងនឹងប្រធានបទខាងក្រោមញឹកញាប់កម្រិតណា?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហដើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់ចំណែ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

II. សូមចង្អុលបង្ហាញពីកម្រិតនៃការឯកភាពរបស់លោកអ្នកចំពោះខ្លឹមសារខាងក្រោមដោយគូសរង្វង់ជុំវិញលេខក្នុងប្រអប់ចម្លើយតប។

1 = មិនឯកភាពទាំងស្រុង (Strongly Disagree) 2 = មិនឯកភាព (Disagree) 3 = គ្មានយោបល់ (Neither Agree nor Disagree) 4 = ឯកភាព (Agree) 5 = ឯកភាពទាំងស្រុង (Strongly Agree)

No	វាជាការចាំបាច់សម្រាប់សាកលវិទ្យាល័យ/វិទ្យាស្ថានរបស់ខ្ញុំ ត្រូវ/ដែល...	ចម្លើយតប				
	បុគ្គលិកប្រកបដោយគុណវុឌ្ឍិ (Qualified Personnel)					
1	... ផ្តាក់ដឹកនាំសាកលវិទ្យាល័យ/វិទ្យាស្ថានបន្តការសិក្សាបន្ថែមដល់កម្រិតបរិញ្ញាបត្រជាន់ខ្ពស់និងបណ្ឌិត (Master's and Doctoral Degree)	1	2	3	4	5
2	... សាស្ត្រាចារ្យ/គ្រូបង្រៀនបន្តការសិក្សាបន្ថែមដល់កម្រិតបរិញ្ញាបត្រជាន់ខ្ពស់និងបណ្ឌិត (Master's and Doctoral Degree)	1	2	3	4	5
3	... ផ្តល់នូវចំណេះដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាពបន្ថែមទៀតជូនថ្នាក់ដឹកនាំសាកលវិទ្យាល័យ/វិទ្យាស្ថាន (sustainability knowledge)	1	2	3	4	5
4	... ផ្តល់នូវចំណេះដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាពបន្ថែមទៀតជូនសាស្ត្រាចារ្យ/គ្រូបង្រៀន (sustainability knowledge)	1	2	3	4	5
	ការសិក្សាស្រាវជ្រាវ (Research)					
5	... បង្កើនការសិក្សាស្រាវជ្រាវលើបញ្ហាការអភិវឌ្ឍប្រកបដោយចីរភាព (sustainability issues)	1	2	3	4	5
6	... បោះពុម្ព ផ្សព្វផ្សាយអត្ថបទស្រាវជ្រាវទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាព (scholar journals)	1	2	3	4	5
7	... ចែករំលែកលទ្ធផលស្រាវជ្រាវលើបញ្ហាការអភិវឌ្ឍប្រកបដោយចីរភាពជាមួយសហគមន៍ និង/ឬស្ថាប័នផ្សេងៗ (sustainability knowledge sharing)	1	2	3	4	5
8	... ប្រើប្រាស់ថវិការបស់សាកលវិទ្យាល័យ/វិទ្យាស្ថានផ្ទាល់សម្រាប់ការស្រាវជ្រាវ (own budget for research)	1	2	3	4	5
9	... ស្វែងរកជំនួយថវិកាសម្រាប់ការស្រាវជ្រាវពីស្ថាប័នផ្សេង (research grant from others)	1	2	3	4	5
	កម្មវិធីសិក្សា និង ការបង្រៀន (Curriculum and Instruction)					
10	... បញ្ចូលគោលគំនិតនៃការអភិវឌ្ឍប្រកបដោយចីរភាពទៅក្នុងកម្មវិធីសិក្សា (sustainability-integrated)	1	2	3	4	5
11	... រៀបចំសកម្មភាពបន្ថែមលើកម្មវិធីសិក្សាដើម្បីលើកកម្ពស់ការយល់ដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាពជូននិស្សិត (extra-curricular activities for students' awareness on sustainability)	1	2	3	4	5
12	... បង្រៀនមុខវិជ្ជាទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាពជូនដល់និស្សិតគ្រប់ឯកទេស (Introduction to Sustainability)	1	2	3	4	5
13	... ការបង្រៀនរួមបញ្ចូលនូវគម្រោងឬកិច្ចការរៀនសូត្រទាក់ទងនឹងការអភិវឌ្ឍសហគមន៍មូលដ្ឋាន (learning projects/tasks related to local community development)	1	2	3	4	5
	ភាពជាដៃគូអភិវឌ្ឍន៍ (Development Partnership)					
14	... ស្វែងរកជំនួយអភិវឌ្ឍន៍អប់រំពីអង្គការអន្តរជាតិដើម្បីចូលរួមលើកកម្ពស់ការយល់ដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាព (development assistance to promote sustainability)	1	2	3	4	5
15	... ស្វែងរកជំនួយអភិវឌ្ឍន៍អប់រំពីអង្គការក្រៅរដ្ឋាភិបាលដើម្បីចូលរួមលើកកម្ពស់ការយល់ដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាព (development assistance to promote sustainability)	1	2	3	4	5
16	... ផ្តល់ជំនួយអប់រំ បច្ចេកទេស/ការសិក្សាទាក់ទិនការអភិវឌ្ឍប្រកបដោយចីរភាពដល់អង្គការក្រៅរដ្ឋាភិបាល (academic assistance to promote sustainability)	1	2	3	4	5
17	... ស្វែងរកជំនួយឧបត្ថម្ភពីក្រុមហ៊ុនឯកជននានាដើម្បីចូលរួមលើកកម្ពស់ការយល់ដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាព (sponsorship to promote sustainability)	1	2	3	4	5
18	... ផ្តល់ជំនួយអប់រំ បច្ចេកទេស/ការសិក្សាទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាពដល់ក្រុមហ៊ុនឯកជននានា (academic assistance to promote sustainability)	1	2	3	4	5
19	... ស្វែងរកជំនួយឧបត្ថម្ភលើការអភិវឌ្ឍពីស្ថាប័នរដ្ឋនានាដើម្បីចូលរួមលើកកម្ពស់ការយល់ដឹងអំពីការអភិវឌ្ឍប្រកបដោយចីរភាព (development assistance to promote sustainability)	1	2	3	4	5

No	វាជាការចាំបាច់សម្រាប់សាកលវិទ្យាល័យ/វិទ្យាស្ថានរបស់ខ្ញុំ ត្រូវ/ដែល...	ចម្លើយតប				
20	... ផ្តល់ជំនួយអប់រំ បច្ចេកទេស/ការសិក្សាទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាពដល់ស្ថាប័នរដ្ឋនានា (academic assistance to promote sustainability)	1	2	3	4	5
	ការចូលរួមចំណែកក្នុងសហគមន៍ **(Community Involvement)**					
19	... លើកកម្ពស់ឲ្យមានការសិក្សារៀនសូត្រពីការបម្រើសេវាសហគមន៍ក្នុងការរួមចំណែកដោះស្រាយបញ្ហាការអភិវឌ្ឍប្រកបដោយចីរភាពតាមរយៈការអប់រំ (students' community service-learning)	1	2	3	4	5
20	... និស្សិតចូលរួមសកម្មភាពសង្គមទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាព	1	2	3	4	5
21	... សាស្ត្រាចារ្យ/គ្រូបង្រៀនចូលរួមសកម្មភាពសង្គមទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាព	1	2	3	4	5
22	... រៀនសូត្រពីសហគមន៍តាមមូលដ្ឋានដើម្បីបង្កើនចំណេះដឹងទាក់ទងនឹងការអភិវឌ្ឍប្រកបដោយចីរភាព	1	2	3	4	5

មតិយោបល់បន្ថែម

សូមផ្តល់យោបល់បន្ថែមលើមធ្យោបាយនៃការកសាងសមត្ថភាពសាកលវិទ្យាល័យ/វិទ្យាស្ថានរបស់លោកអ្នកដើម្បីរួមចំណែកលើកកម្ពស់ការអភិវឌ្ឍប្រកបដោយចីរភាពនៅក្នុងសាកលវិទ្យាល័យ/វិទ្យាស្ថានក៏ដូចក្នុងសហគមន៍មូលដ្ឋាន។ លោកអ្នកអាចសរសេរជាភាសាខ្មែរ ឬភាសាអង់គ្លេស ។

បុគ្គលិកប្រកបដោយគុណវុឌ្ឍិ (Qualified Personnel)

.....

.....

ការសិក្សាស្រាវជ្រាវ (Research)

.....

.....

កម្មវិធីសិក្សា និង ការបង្រៀន (Curriculum and Instruction)

.....

.....

ភាពជាដៃគូអភិវឌ្ឍន៍ (Development Partnership)

.....

.....

ការចូលរួមចំណែកក្នុងសហគមន៍ (Community Involvement)

.....

.....

សូមថ្លែងអំណរគុណដ៏ជ្រាលជ្រៅចំពោះការចូលរួមសហការនិងផ្តល់យោបល់របស់លោកអ្នក៕

Appendix 4. Questionnaire for Students

កម្រងសំណួរ (QUESTIONNAIRE)

(សម្រាប់និស្សិត)

ប្រធានបទស្រាវជ្រាវ

"សំណើជំរើសនៃគោលនយោបាយអប់រំសម្រាប់ការកសាងសមត្ថភាពរបស់គ្រឹះស្ថានឧត្តមសិក្សា ដើម្បីលើកកម្ពស់ការអភិវឌ្ឍប្រកបដោយនិរន្តរភាព/ចីរភាពនៅកម្ពុជា"

ដោយ ម៉ម សុជាតិ

២០១៥

Definition of Key Terms

ការអភិវឌ្ឍន៍ប្រកបដោយចីរភាព/និរន្តរភាព គឺជាគោលដៅ/កិច្ចដំណើរឆ្ពោះទៅរកអនាគតគង់វង្សយូរអង្វែងដោយធានាឲ្យមានការរីកចម្រើនប្រកបដោយសមតុល្យលើទិដ្ឋភាព សេដ្ឋកិច្ច/ការងារ ហិរញ្ញវត្ថុ និង សង្គម-វប្បធម៌/សមភាព។)

(ភាពជាដៃគូអភិវឌ្ឍន៍ក្នុងវិស័យឧត្តមសិក្សា គឺជាកិច្ចសហការអភិវឌ្ឍន៍រវាងគ្រឹះស្ថានឧត្តមសិក្សានានានឹងបណ្តាស្ថាប័នច្បេងៗ រួមមានស្ថាប័នរដ្ឋ អង្គការអន្តរជាតិ អង្គការក្រៅរដ្ឋាភិបាល និងវិស័យឯកជន។ ភាពជាដៃគូអភិវឌ្ឍន៍នេះមានគោលបំណងសហការលើកិច្ចការពាក់ព័ន្ធនឹងបញ្ហាការអភិវឌ្ឍប្រកបដោយចីរភាពទាំងក្នុងបរិវេណគ្រឹះស្ថានឧត្តមសិក្សានិងក្នុងសហគមន៍មូលដ្ឋានផង។)

(ការចូលរួមចំណែកក្នុងសហគមន៍ គឺជាទម្រង់សកម្មភាពចុះជួយមូលដ្ឋានរបស់គ្រឹះស្ថានឧត្តមសិក្សានៅតាមសហគមន៍មូលដ្ឋានទាំងឡាយដើម្បីលើកកម្ពស់ការរស់នៅរស់ជីវភាពរបស់ប្រជាជន និងជំរុញទឹកចិត្តឲ្យពួកគាត់ប្រតិបត្តិ សំដៅទៅរកការរៀបចំរស់នៅប្រកបដោយចីរភាព។)

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កម្រងសំណួរ

(សម្រាប់និស្សិត)

សូមបញ្ជាក់ថា រាល់ព័ត៌មានដែលលោកអ្នកផ្តល់ជូននឹងរក្សានូវភាពសម្ងាត់យ៉ាងហ្មត់ចត់។

1. រៀននៅមហាវិទ្យាល័យ (Faculty/College): .....

2. និស្សិតកម្រិត 1) ☐ បរិញ្ញាបត្រ 2) ☐ បរិញ្ញាបត្រជាន់ខ្ពស់

ផ្នែកទី 1៖ សូមឆ្លើយសំណួរខាងក្រោមដោយគូសគូសរង្វង់ជុំវិញលេខក្នុងប្រអប់ចម្លើយតប។

1 = មិនធ្លាប់ (Never) 2 = កម្រ (Rarely) 3 = ជួនពេលខ្លះ (Sometimes) 4 = ជាញឹកញាប់ (Very Often) 5 = ជានិច្চকাল (Always)

1. តើលោកអ្នកចូលរួមវគ្គបំប៉ន កិច្ចប្រជុំ សន្និសីទ ឬសិក្ខាសាលា (training, academic meetings, conferences, seminar) ទាក់ទិននឹងប្រធានបទខាងក្រោមញឹកញាប់កម្រិតណា ?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហដើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្চប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់ចំណេញ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្চេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

2. តើលោកអ្នកធ្លាប់រៀនមុខវិជ្ជាទាក់ទងនឹងប្រធានបទខាងក្រោមញឹកញាប់កម្រិតណា ?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5

	ប្រធានបទ (Topics)	ចម្លើយតប				
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហជើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់ចំណេញ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

3. តើលោកអ្នកធ្លាប់ទទួលខ្លឹមសារព័ត៌មានទាក់ទងនឹងប្រធានបទខាងក្រោមពីប្រព័ន្ធផ្សព្វផ្សាយ (ដូចជា វិទ្យុ ទូរទស្សន៍ កាសែត និងព័ត៌មានតាមអ៊ិនធឺណែត) ញឹកញាប់កម្រិតណា?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហជើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់ចំណេញ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

4. តើលោកអ្នកចូលរួមក្នុងសកម្មភាពអភិវឌ្ឍន៍ក្នុងសហគមន៍មូលដ្ឋានទាក់ទងនឹងប្រធានបទខាងក្រោមញឹកញាប់កម្រិតណា?

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហជើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់កម្រៃ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

4. តើលោកអ្នកគិតថាប្រធានបទខាងក្រោមមានសារៈសំខាន់ចំពោះសហគមន៍របស់លោកអ្នកកម្រិតណា?

1 = មិនសំខាន់សោះ (Not Very Important) 2 = មិនសំខាន់ (Not Important) 3 = សំខាន់ល្មម (Fairly Important) 4 = សំខាន់ (Important) 5 = សំខាន់ខ្លាំងណាស់ (Very Important)

	ប្រធានបទ (Topics)	ចម្លើយតប				
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	1	2	3	4	5
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	1	2	3	4	5
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	1	2	3	4	5
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	1	2	3	4	5
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	1	2	3	4	5
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	1	2	3	4	5
7)	សមភាពយេនឌ័រ (Gender Equality)	1	2	3	4	5
8)	សិទ្ធមនុស្ស (Human Right)	1	2	3	4	5
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	1	2	3	4	5
10)	កិច្ចសហជើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	1	2	3	4	5

	ប្រធានបទ (Topics)	ចម្លើយតប				
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	1	2	3	4	5
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	1	2	3	4	5
13)	ផលិតកម្ម និង ប្រាក់កម្រៃ (Production and Profits)	1	2	3	4	5
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	1	2	3	4	5
15)	បច្ចេកវិទ្យា (Technology)	1	2	3	4	5
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	1	2	3	4	5
17)	ផ្សេងទៀត:	1	2	3	4	5

ផ្នែកទី 2៖ សូមគូសសញ្ញាខ្វែងក្នុងប្រអប់ ☒ ចំពោះចម្លើយតបណាដែលពិតជាក់ស្តែងអំពីលោកអ្នក។

1. តើលោកអ្នកចូលចិត្តចែករំលែកចំណេះដឹង ឬពិភាក្សាគ្នាអំពីប្រធានបទអ្វីខ្លះ?

	ប្រធានបទស្រាវជ្រាវ (Topics)	ចូលចិត្តចែករំលែក
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	☐
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	☐
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	☐
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	☐
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	☐
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	☐
7)	សមភាពយេនឌ័រ (Gender Equality)	☐
8)	សិទ្ធមនុស្ស (Human Right)	☐
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	☐
10)	កិច្ចសហដើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	☐
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	☐
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	☐
13)	ផលិតកម្ម និង ប្រាក់កម្រៃ (Production and Profits)	☐
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	☐
15)	បច្ចេកវិទ្យា (Technology)	☐
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	☐
17)	ផ្សេងទៀត:	

2. តើលោកអ្នកបានចែករំលែក ឬផ្សព្វផ្សាយចំណេះដឹងរបស់លោកអ្នកជូនទៅអ្នកដទៃប្រហែលប៉ុន្មាននាក់ ក្នុង១ឆ្នាំសិក្សា?

☐ 1) មិនដែលចែករំលែកទេ

☐ 2) ប្រហែល ..... នាក់ ក្នុង១ឆ្នាំសិក្សា

3. ក្រោយពីបញ្ចប់ការសិក្សា តើលោកអ្នកចាប់អារម្មណ៍នឹងធ្វើការងារ/ប្រកបអាជីពទាក់ទងនឹងប្រធានបទណាខ្លះ?

	ប្រធានបទស្រាវជ្រាវ (Topics)	ចំណាប់អារម្មណ៍
1)	បម្រែបម្រួលអាកាសធាតុ (Climate Change)	☐
2)	កាកសំណល់ និងបញ្ហាកង្វក់ (Waste and Pollution)	☐
3)	ការកែច្នៃយកមកប្រើវិញ (Recycling)	☐
4)	ការសន្សំសំចៃថាមពល (Energy Saving)	☐
5)	ជីវៈចម្រុះ និងធនធានធម្មជាតិ (Biodiversity and Natural Resources)	☐
6)	វប្បធម៌សន្តិភាព (Culture of Peace)	☐
7)	សមភាពយេនឌ័រ (Gender Equality)	☐
8)	សិទ្ធមនុស្ស (Human Right)	☐
9)	ការកាត់បន្ថយភាពក្រីក្រ (Poverty Reduction)	☐
10)	កិច្ចសហដើម្បីសកម្មភាពសង្គម (Corporate Social Responsibility)	☐
11)	កំណើនសេដ្ឋកិច្ច (Economic Growth)	☐
12)	ធុរៈកិច្ចប្រកបដោយនិរន្តរភាព/ចីរភាព (Sustainable Business)	☐
13)	ផលិតកម្ម និង ប្រាក់កម្រៃ (Production and Profits)	☐
14)	ភាពមានការងារធ្វើ/មុខរបរ (Employment)	☐
15)	បច្ចេកវិទ្យា (Technology)	☐
16)	ការអភិវឌ្ឍប្រកបដោយចីរភាព (Sustainability)	☐
17)	ផ្សេងទៀត:	

សូមថ្លែងអំណរគុណដ៏ជ្រាលជ្រៅចំពោះការចូលរួមសហការរបស់លោកអ្នក ។

Appendix 5. Interview Protocol

Qualified Personnel [Capacity Building of Personnel]

1. How does your university recruit/select personnel to fulfill a particular position (dean, head of department, faculty member)? (Based on what?)

2. How does your university prepare personnel in building or strengthening their knowledge related to education for sustainability?

3. What are the challenges in building capacity of personnel in sustainability/education for sustainability in your university?

Research [Promotion of Research Activities]

1. How does your university promote sustainability/education for sustainability through research?

2. What are the sources of financial support for promoting research activities?

3. How does your university enhance academic resources for research?

4. How does your university share and publish research results to other institutions and people?

5. What are the challenges of promoting research activities related to sustainability/education for sustainability in your university?

Curriculum and Instruction [Enhancement of Curriculum and Instruction]

1. How does your university promote sustainability/education for sustainability through academic programs and curriculum?

2. How does your university promote sustainability/education for sustainability through course or teaching?

3. How does your university promote students' awareness on sustainability through extra-curricular activities?

4. What are the challenges of promoting sustainability/education for sustainability through curriculum and instruction in your university?

Development Partnership [Collaboration between Universities and their Partners]

1. Who are the key partners that your university cooperate to promote sustainability/education for sustainability?

2. How does your university promote sustainability/education for sustainability through development partnership?

3. What are the challenges of promoting sustainability/education for sustainability through development partnership of your university?

Community Involvement [Communication between Universities and Local Communities]

1. What activities does your university develop to promote villagers' awareness on sustainability/to contribute assistance to local communities?

2. How does your university develop activities to promote sustainability in local communities?

3. How does your university engage faculty members in sustainability-related activities in local communities?

4. How does your university engage students in sustainability-related activities in local communities?

5. How does your university learn from local communities to develop education for sustainability?

6. What challenges does your university have to promote sustainability in local communities?

Appendix 6. Letter of Request for Data Collection for the Research (from Faculty of Education to the Directorate General of Higher Education)

Ref.0512.6(2771)/57-

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 2, 2014

H.E. MAK Ngoy
Director General, Directorate General of Higher Education
Ministry of Education, Youth and Sports
Kingdom of Cambodia

Subject: Request for cooperation in a doctoral dissertation research project

Dear H.E. MAK Ngoy,

Attachment: Mr. Socheath Mam's dissertation proposal

On behalf of the Faculty of Education, Chulalongkorn University, I am writing to request a cooperation in a research project conducted by Mr. Socheath Mam, one of our students in the Doctor of Philosophy Program in Development Education. Mr. Socheath Mam is currently conducting his doctoral dissertation research project on "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**". This research is advised by Assistant Professor Chuenchanok Kovin, Ph.D, and co-advised by Assistant Professor Chirapol Sinthunawa, Ph.D.

In this research project, Mr. Socheath Mam needs to collect data in the forms of pertinent documents and expert opinions from concerned officials at higher education institutions under supervision of the Ministry of Education, Youth and Sport, at the Department of Higher Education, and at the Directorate General of Higher Education. Should you need further information, please contact Mr. Socheath Mam directly at mobile phone: +855 12 519 954 (Cambodia)/+66 89 418 5474 (Thailand), or email: msocheathcam@gmail.com.

We are hoping that you will grant permission to Mr. Socheath Mam to collect the data as mentioned above. Your kind cooperation is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Office of Academic Affairs Tel: +66 2 218 2681 Ext. 600

Appendix 7. Letter of Request for Data Collection for the Research (from the Directorate General of Higher Education to Higher Education Institutions)

ព្រះរាជាណាចក្រកម្ពុជា
ជាតិ សាសនា ព្រះមហាក្សត្រ

ក្រសួងអប់រំ យុវជន និងកីឡា
អគ្គនាយកដ្ឋានឧត្តមសិក្សា
លេខ: ៧៥ អគ.ឧស

រាជធានីភ្នំពេញ ថ្ងៃទី ០៤ ខែ មីនា ឆ្នាំ២០១៥

ជម្រាបជូន
ឯកឧត្តម លោក លោកស្រី សាកលវិទ្យាធិការ នៃគ្រឹះស្ថានឧត្តមសិក្សា

កម្មវត្ថុ ៖ ករណីស្នើសុំសហការផ្តល់ព័ត៌មានសម្រាប់ការសរសេរនិក្ខេបបទថ្នាក់បណ្ឌិតរបស់និស្សិត មិម សុជាតិ។

យោង ៖ -លិខិតលេខ Ref.0512.6(2771)/57 ចុះថ្ងៃទី ២ ខែធ្នូ ឆ្នាំ២០១៤ របស់មហាវិទ្យាល័យអប់រំ សាកលវិទ្យាល័យជូឡាឡុងកន នៃប្រទេសថៃ
-លិខិតសុំធ្វើការសិក្សាស្រាវជ្រាវសម្រាប់សរសេរនិក្ខេបបទថ្នាក់បណ្ឌិតរបស់និស្សិត មិម សុជាតិ ចុះថ្ងៃទី ១៥ ខែធ្នូ ឆ្នាំ ២០១៤

តបតាមកម្មវត្ថុ និងយោងខាងលើ ខ្ញុំសូមជម្រាបជូន **ឯកឧត្តម លោក លោកស្រី** ជ្រាបថា និស្សិត មិម សុជាតិ ជានិស្សិតថ្នាក់បណ្ឌិត ដែលសិក្សានៅសាកលវិទ្យាល័យជូឡាឡុងកន ប្រទេសថៃ កំពុងសរសេរនិក្ខេបបទស្តីពី "សំណើជម្រើសគោលនយោបាយអប់រំសម្រាប់ការកសាងសមត្ថភាពរបស់គ្រឹះស្ថានឧត្តមសិក្សាដើម្បីលើកកំពស់ការអភិវឌ្ឍប្រកបដោយនិរន្តរភាពនៅកម្ពុជា" បានស្នើសុំព័ត៌មានអំពី គុណវុឌ្ឍិរបស់សាស្ត្រាចារ្យ កម្មវិធីសិក្សា និងសកម្មភាពបណ្តុះបណ្តាលរបស់គ្រឹះស្ថានឧត្តមសិក្សា តាមរយៈឯកសារ ការធ្វើបទសម្ភាសន៍ និងការបំពេញកម្រងសំនួរ ។ ព័ត៌មានដែលផ្តល់ឱ្យដោយគ្រឹះស្ថានឧត្តមសិក្សានីមួយៗនឹងត្រូវរក្សាជាការសម្ងាត់។

អាស្រ័យ ដូចបានជម្រាបជូនខាងលើ សូម**ឯកឧត្តម លោក លោកស្រី** ពិនិត្យលទ្ធភាពអនុញ្ញាតតាមការគួរ ។

សូម**ឯកឧត្តម លោក លោកស្រី** ទទួលនូវការរាប់អានដ៏ស្មោះអំពីខ្ញុំ ។

អគ្គនាយក

ម៉ក់ ង៉ុយ

ចម្លងជូន
- អគ.រហ "ដើម្បីជូនជ្រាប"
- កាលប្បវត្តិ
- ឯកសារ គា.ឧស

Appendix 8. Invitation Letter for the Focus Group Discussion Meeting

Ref.0512.6(2791.10)/58- 6333

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 28, 2015

H.E. MAK Ngoy
Director General, Directorate General of Higher Education
Ministry of Education, Youth and Sport
Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear H.E. MAK Ngoy,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6385

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 23, 2015

Mr. KONG Phoumika
Director, Department of Higher Education
Mistry of Education, Youth and Sport
Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear KONG Phoumika,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6387

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December ๑๘, 2015

Mr. SENG Rathea
Deputy Director, Department of Biodiversity,
General Inspectorate Department of National Council
for Sustainable Development
Mistry of Environment, Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear Mr. SENG Rathea,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

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Your kind presence at the meeting is greatly appreciated.

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Associate Dean

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Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6386

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 28, 2015

Mr. TANN Sambath
Deputy Director, Department of Institutional Management
Mistry of Labor and Vocational Training
Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear Mr. TANN Sambath,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6384

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 28, 2015

H.E. LY Chheng
Director, Cambodian Higher Education Association
Phnom Penh, Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear H.E. LY Chheng,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6390

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 22, 2015

Mr. KOEM OEUN
Director, Cambodia-Japan Cooperation Center
Phnom Penh, Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear Mr. KOEM Oeun,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6392

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 28, 2015

Dr. KHIENG Sothy
Head of Education Unit
Cambodian Development and Research Institute
Phnom Penh, Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear Dr. KHIENG Sothy,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Ref.0512.6(2791.10)/58- 6391

Faculty of Education
Chulalongkorn University
Phayathai Road, Pathumwan
Bangkok 10330, Thailand

December 28, 2015

Mr. SOTH Nimal
Education Program Officer
Education for Sustainable Development
UNICEF Phnom Penh Office
Kingdom of Cambodia

Subject: An invitation to participate in a focus group discussion for a doctoral dissertation research as expert

Dear Mr. SOTH Nimal,

On behalf of the Faculty of Education, Chulalongkorn University, I am writing this letter in the hope that you would be so kind as to share your expert opinions in a focus group discussion meeting to consider the draft of higher educational policy alternatives, which constitute the major findings of the doctoral dissertation entitled "**Proposed Educational Policy Alternatives for Capacity Building of Higher Education Institutions to Promote Sustainability in Cambodia**" conducted by Mr. Socheath Mam under the supervision of Assistant Professor Chuenchanok Kovin, Ph.D, and Assistant Professor Chirapol Sinthunawa, Ph.D. This dissertation is a partial requirement of the Doctor of Philosophy Program Degree in Development Education at Chulalongkorn University.

This focus group discussion meeting will be held on January 26, 2016 (8.30 a.m-11.30 a.m) at Cambodia-Japanese Cooperation Center (CJCC), Royal University of Phnom Penh.

Your kind presence at the meeting is greatly appreciated.

Yours sincerely,

(Associate Professor Noawanit Songkram, Ph.D.)
Associate Dean

Further information, the Office of Academic Affairs: +66 2 218 2681 Ext. 600
Or, Mr. Socheath Mam: +855 12 519 954, e-mail: msocheathcam@gmail.com

Appendix 9. Publication of Research Paper as Parts of the Dissertation

Dear Mr. Mam:

Manuscript ID IJSHE-12-2015-0198 entitled "Research and Teaching about Sustainability in Cambodian Universities: Challenges and Directions" which you submitted to the International Journal of Sustainability in Higher Education, has been reviewed. The comments of the reviewer(s) are included at the bottom of this letter.

The reviewer(s) have recommended publication, but also suggest some revisions to your manuscript. Therefore, I invite you to respond to the reviewer(s)' comments and revise your manuscript.

To revise your manuscript, log into https://mc.manuscriptcentral.com/ijshe and enter your Author Centre, where you will find your manuscript title listed under "Manuscripts with Decisions." Under "Actions," click on "Create a Revision." Your manuscript number has been appended to denote a revision.

You will be unable to make your revisions on the originally submitted version of the manuscript. Instead, revise your manuscript using a word processing program and save it on your computer. Please also highlight the changes to your manuscript within the document by using the track changes mode in MS Word or by using bold or coloured text.

Once the revised manuscript is prepared, you can upload it and submit it through your Author Centre.

When submitting your revised manuscript, you will be able to respond to the comments made by the reviewer(s) in the space provided. You can use this space to document any changes you make to the original manuscript. In order to expedite the processing of the revised manuscript, please be as specific as possible in your response to the reviewer(s).

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to the International Journal of Sustainability in Higher Education, your revised manuscript should be uploaded as soon as possible. If it is not possible for you to submit your revision in a reasonable amount of time, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to the International Journal of Sustainability in Higher Education and I look forward to receiving your revision.

Sincerely,
Dr. Tamara Savalyeva
Guest Editor, International Journal of Sustainability in Higher Education
tsavelyeva@gmail.com

NANYANG TECHNOLOGICAL UNIVERSITY

School of Humanities and Social Sciences
Environment and Sustainability Research Cluster

Reg. No. 200004290E

18 March 2016

Socheath Mam
Faculty of Education
Chulalongkorn University
254 Phayathai Road, Pathumwan District
Bangkok, Thailand 10330

INVITATION TO A CONFERENCE ON "A COMMUNITY OF PRACTICE FOR MORE EFFECTIVE IMPLEMENTATION OF HIGHER EDUCATION FOR SUSTAINABILITY IN ASIA"

Dear Mr. Mam,

We are pleased to inform you that your paper titled "University Student Engagement in Local Communities towards Sustainability in Cambodia" has been accepted for presentation at *A Community of Practice for More Effective Implementation of Higher Education for Sustainability in Asia* to be held on **21 and 22 April 2016** at the Nanyang Executive Center (NEC), Nanyang Technological University (NTU).

To receive full funding for the conference, you will need to submit a full paper (2000-5000 words) no later than **5 April** 2016 (to be considered for publication in an edited book or special journal edition to be arranged by the conference organizers). Please also send your short biography (about 100 words) and a small image of you (to be included on the website), by 5 April 2016. Please send your presentation slides by **18 April** 2016.

We are pleased to provide the following support for you to present your paper:

- Reimbursement of up to SGD$300 for your airfare (Please book your flight, and send us your flight information and receipt as soon as possible. Note that we may not pay your full airfare if it exceeds this amount.)
- 3 night accommodation at the NEC (**arrival on 20 April** 2016 and **departure on 23 April** 2016) and arranged transit to/from Changi airport
- All meals (from the evening of 20 April to the morning of 23 April 2016)

This workshop is funded by the School of Humanities and Social Sciences of NTU.

Should you have any further questions or need clarification, please feel free to contact me or Dr. Michelle Y. Merrill (mmerrill@ntu.edu.sg). We look forward to your participation and contribution. Thank you.

Yours sincerely,

Youngho Chang (Ph.D.) Assistant Professor
School of Humanities and Social Sciences
Nanyang Technological University
Email: isyhchang@ntu.edu.sg
Tel: (65) 6513 8107 Fax: (65) 6795 5797

มหาวิทยาลัยอัสสัมชัญ
ASSUMPTION UNIVERSITY

To: Mr. Socheath Mam
Ph.D. Candidate, Division of Development Education,
Faculty of Education, Chulalongkorn University,
Bangkok, Thailand

Date: 26 July 2016

Subject: Letter of Acceptance

Dear Mr. Socheath Mam,

I am pleased to inform you that your article, "Capacity Building of University Faculty Members to Promote the Sustainable Self in Cambodian Higher Education", co-authored with Assistant Professor Dr. Chuenchanok Kovin, and Assistant Professor Dr. Chirapol Sinthunawa, has been accepted by the Editorial Board of the ABAC Journal and it is on the schedule for publication in the ABAC Journal Vol. 37 No. 1 (January-June, 2017).

Please accept my appreciation of your interest in publishing the article in the ABAC Journal.

Sincerely yours,

Dr. Absorn Meesing
Managing Editor
ABAC Journal
Assumption University
Bangkok 10240, Thailand
Tel: 66(0)23004543-62 Ex. 1170
http://www.abacjournal.au.edu

VITA

Socheath Mam is a lecturer in College of Education, the University of Cambodia. He attended the Teacher of Basic Education Level training program at Takeo Regional Teacher Training Center in 2003 and served as a teacher of English at Hun Sen Mittapheap High School. He obtained B.Ed in Teaching English as a Foreign Language (TEFL) in 2007 from University of Management and Economics (Cambodia) and the Certificate of Teacher with Higher Education in English-Educational Psychology in 2008 at National Institute of Education (Cambodia). Three years later, he gained M.Ed in Educational Research and Evaluation from Yogyakarta State University (Indonesia). From 2012 to 2016, he pursued his Ph.D. in Development Education at Chulalongkorn University, where his dissertation focused on educational policy alternatives for capacity building of Cambodian HEIs to promote sustainability. His recent publication relates to research and teaching about sustainability in Cambodia universities, capacity building of faculty members to promote sustainability in Cambodian HEIs, and university student engagement in local communities towards sustainability in Cambodia. The areas of his interests include educational policy and leadership, teaching methodology and pedagogy, and education for sustainable development. He can be reached at e-mail: msocheathcam@gmail.com.