Mapping the Path to Sustainable Education: Critical Dimensions of Locally–Established Higher Education Institutions

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Abstracts: This study examines critical dimensions of higher education and their performance in locally-established higher education institutions (HEIs). The research findings indicate that administration, mission, and planning are the highest-performing dimensions, followed by operations and student opportunities. However, curriculum, faculty and staff development and rewards, research and scholarship, and outreach and service demonstrate regular performance. The qualitative analysis reveals several important conclusions. Firstly, the Vision, Mission, Goals, and Objectives (VMGO) of the HEIs align with sustainability commitments. Secondly, these institutions prioritize employee involvement in decision-making, provide appropriate status and benefits, and shape academic disciplines based on core values, showing engagement with social and ecological systems. Thirdly, only a small percentage of faculty members focus on teaching or researching sustainability issues. Additionally, participants acknowledge a significant gap between their institutions and ideal campus models practiced by established universities in the country. These universities actively support the government's clean and green program through projects and research. The adoption of the Strategic Performance Monitoring System (SPMS) and budget appropriations for faculty development programs are noted. Locally-established HEIs contribute to sustainable community development through partnerships with schools, local governments, and businesses. Participants engage in sustainability-related training and conferences. The institutions have dedicated offices for linkages and placement and conduct outreach programs in specific communities. Students actively participate through student councils, Go Green Project Teams, and college clubs. This research sheds light on the performance and commitment of locally established HEIs toward sustainability and highlights areas for improvement to align with the practices of established universities.

Keywords: Higher education institutions (HEIs), Sustainability, Performance, Locally-established, Curriculum.

1. INTRODUCTION

In recent years, the concept of sustainable development has gained significant attention worldwide. With growing concerns about environmental degradation, social inequalities, and economic instability, the need for sustainable solutions has become more pressing than ever. Education, as a powerful catalyst for change, plays a pivotal role in fostering sustainable development. In this context, higher education institutions, especially those established at the local level, have a unique opportunity to contribute to sustainable education and enhance development initiatives within their communities.

Local higher education institutions differ from traditional universities in several ways. They are often deeply rooted in the local context, with a strong commitment to serving their communities. These institutions understand the specific needs and challenges faced by their regions and are better equipped to design educational programs and initiatives that address these issues effectively. By focusing on local development initiatives, they not only provide access to higher education but also empower individuals and communities to create sustainable solutions.

One critical dimension to consider is the alignment of the curriculum with sustainable development goals. Locally-established higher education institutions have the flexibility to integrate sustainability principles and practices into their curricula. This allows students to develop a deep understanding of environmental, social, and economic challenges and equips them with the necessary knowledge and skills to become agents of change. By incorporating interdisciplinary approaches and experiential learning opportunities, these institutions can foster critical thinking and problem-solving abilities among students, preparing them for real-world sustainability challenges.

Moreover, the engagement of higher education institutions with local communities is vital for sustainable education. By actively collaborating with local stakeholders, such as government bodies, non-profit organizations, and industry partners, these institutions can identify community needs and co-create solutions. Such partnerships facilitate knowledge exchange, promote community-driven initiatives, and ensure that educational programs are relevant and responsive to local contexts. The involvement of students in community-based projects and internships further enhances their understanding of sustainability issues and nurtures a sense of civic responsibility.

Financial sustainability is another crucial aspect to consider. Locally-established higher education institutions often face resource constraints, requiring innovative funding mechanisms to support their development initiatives. By diversifying revenue streams, including grants, endowments, partnerships, and fee structures, these institutions can secure the necessary financial resources to invest in infrastructure, faculty development, and research. Financial sustainability enables institutions to strengthen their educational programs, improve student support services, and expand their impact on sustainable development.

Furthermore, technology and innovation play a pivotal role in advancing sustainable education in locally-established higher education institutions. The integration of digital tools, online learning platforms, and open educational resources can enhance access to quality education, especially in remote areas. Technology-enabled pedagogies can promote interactive and collaborative learning, transcending traditional boundaries and enabling knowledge sharing on a global scale. Moreover, the use of advanced technologies, such as renewable energy systems and smart infrastructure, can model sustainable practices within the institutions themselves, serving as inspiring examples for students and the broader community.

Locally-established higher education institutions have immense potential to enhance development initiatives and contribute to mapping the path to sustainable education. By aligning their curriculum with sustainable development goals, engaging with local communities, ensuring financial sustainability, and embracing technology and innovation, these institutions can foster a holistic approach to education that equips students with the knowledge, skills, and values needed for a sustainable future. This study aims to shed light on the critical dimensions and best practices of locally-established higher education institutions, providing valuable insights for policymakers, educators, and stakeholders committed to sustainable education and development.

2. THEORETICAL FRAMEWORK

Sustainable development and education are intertwined concepts that have gained significant attention in recent years (Gurung, 2020; United Nations, 2015). Locally established tertiary education institutions play a crucial role in promoting sustainable development within their communities (Oketch & Ngware, 2016). This theoretical framework aims to map the path to sustainable education by examining the factors that enhance the development initiatives of these institutions. The framework draws on the Human Capital Theory (Schultz, 1961), the Resource-Based View (Wernerfelt, 1984), and the Triple Bottom Line approach (Elkington, 1997) to provide a comprehensive understanding of sustainable education.

Human Capital Theory posits that investing in education and knowledge development leads to enhanced economic growth and social development (Schultz, 1961). This theory will guide the exploration of how locally established tertiary education institutions contribute to sustainable development by equipping students with the necessary skills and knowledge to address local challenges. By examining the curriculum, teaching methods, and learning outcomes, this framework will assess the extent to which these institutions align their programs with sustainable development goals.

The Resource-Based View emphasizes the strategic utilization of resources to gain a competitive advantage (Wernerfelt, 1984). Within the context of locally established tertiary education institutions, this framework will examine the availability and utilization of resources such as funding, infrastructure, and partnerships. It will assess how these institutions leverage their resources to enhance their development initiatives and contribute to sustainable education.

The Triple Bottom Line approach suggests that sustainable development requires a balanced consideration of economic, social, and environmental factors (Elkington, 1997). This framework will investigate how locally-established tertiary education institutions incorporate these dimensions into their development initiatives. It will explore the extent to which these institutions engage with local communities, promote social inclusivity, and integrate environmentally sustainable practices into their operations. By integrating these theoretical perspectives, this framework provides a comprehensive understanding of the factors that enhance the development initiatives of locally-established tertiary education institutions. It will guide the research in mapping the path to sustainable education by examining the curriculum, resources, and triple-bottom-line considerations within these institutions. The findings will contribute to the literature on sustainable development and provide practical recommendations for enhancing the role of locally-established tertiary education institutions in promoting sustainable education.

3. METHODS

This study employed a mixed-methods research design to investigate the factors that enhanced the development initiatives of locally-established higher education institutions in promoting sustainable education. The research began with a quantitative phase, where survey questionnaires were distributed to faculty members, staff, and administrators from purposively selected institutions. The critical dimensions of sustainability in locally-established higher education have been identified through the Sustainability Indicators Project conducted by the Association of University Leaders for a Sustainable Future (ULSF). Following the quantitative phase, a qualitative phase was conducted, involving semi-structured interviews and focus group discussions with key stakeholders. These sessions explored participants' perceptions, experiences, and recommendations related to sustainable education. The data collected through surveys, interviews, and focus groups were analyzed using descriptive statistics for quantitative data and thematic analysis for qualitative data. Ethical considerations were ensured, and efforts were made to mitigate limitations such as generalizability through careful sample selection and robust data analysis techniques. The findings provided valuable insights into enhancing the role of locally-established tertiary education institutions in promoting sustainable education.

4. RESULTS

This section presents the results and discussions of the study, which aimed to explore the critical dimensions of locally-established higher education institutions and their contributions to enhancing development initiatives for sustainable education. The findings shed light on the strategies, challenges, and successes of these institutions in promoting sustainable education within their communities.

4.1 Administration, Mission, and Planning

Table 1 presents the level of administration, mission, and planning with regard to sustainability commitments. The table includes indicators related to the extent to which formal written statements of purpose and objectives reflect a commitment to sustainability at different levels within the institution. The indicators are rated on a scale of 0 to 4, with a weighted mean score and a corresponding qualitative description provided.

Table 1. Administration, Mission, and Planning

Indicator	Mean	Qualitative Description
1. To what extent do the formal written statements describing the purposes and objectives of the units listed below reflect a commitment to sustainability? (Such statements include policy and planning documents, annual reports, brochures, catalogues, etc.) _____ the institution as a whole _____ your college or division _____ your unit or department _____ other units within the institution	2.75 2.75 2.75	Quite a bit Quite a bit Quite a bit
Weighted Mean	2.75	Quite a bit

Legend: 3.50 – 4.00 A great deal; 2.50 – 3.49 Quite a bit; 1.50 – 2.49 A little; 0.50 – 1.49   None; 0.00 – 0.49   Don't know

The mean score for all indicators is 2.75, indicating a rating of "Quite a Bit" in terms of reflecting a commitment to sustainability. Specifically, the institution, the college or division, and the unit or department all received the same mean score of 2.75, suggesting a consistent level of commitment across these levels. Additionally, other units within the institution also received a mean score of 2.75, indicating a similar commitment to sustainability.

Based on the qualitative interpretation, a rating of "Quite a Bit" implies that there is evidence of good performance in terms of sustainability commitments reflected in the formal written statements. While the table does not provide specific details about the content of these statements, it suggests that the institution has made substantial efforts to incorporate sustainability goals and objectives into its policies, planning documents, and other relevant materials. The written statements of the mission and purpose of the institution and its various units express their philosophies and commitments. Descriptions of learning objectives and public relations materials of the various schools, departments, programs, or offices would express prominent and explicit concern for sustainability (Clugston and Calder, 2009).

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

On question,

1. To what extent do the formal written statements describing the purposes and objectives of the units listed below reflect a commitment to sustainability? (Such statements include policy and planning documents, annual reports, brochures, catalogs, etc.)

Local College A answered that:

> *I will rate it 3 (Quite a Bit) from the institution as a whole down to our units/departments because it is clear in our VMGO (vision, mission, goals, and objectives) of the institution.*

> *(This answer is similar to the three other local colleges: B, C, and D)*

Local College E answered that:

> *My rating on this is 2 (A Little) because we still have to revisit our VMGO (vision, mission, goals, and objectives) aligning it to the new mandates of the Commission on Higher Education (CHED) – the Outcomes–Based Education (OBE) for Quality Assurance. And rest assured that after we come up with the new one, it instills the commitment of the institution to sustainability.*

The participants of this study were determined in achieving the institution's target as stipulated in their VMGO statements and the assurance of quality is visible in their quest for excellence. The participants of local colleges A, B, C, and D were very much observant towards attaining their VMGO, and yet the rating of 3 in this area is quite a bit of evidence of showing good performance while local college E, though the participant rated 2 which is described as "a little" and further means that evidence show regular performance in this area but her reason is to revisit the VMGO and align it with current mandates of CHED which means that their college is directed towards upgrading its goals for internalization and that is through the outcomes–based education (OBE) and hence, quality assurance (QA). The notion of quality as fitness for purpose and the adoption of outcomes–based QA framework presuppose quality goals that are anchored to the individual HEIs' vision and mission statements. Since HEIs define their institutions' vision and mission in response to the particularities of local and regional needs and opportunities

and in consideration of specific institutional strengths and weaknesses, the quality goals of individual HEIs necessarily differ from each other. Thus, if Philippine HEIs are true to their institutional vision and mission statements, they are likely to identify unique and different attributes and quality outcomes. Likewise, HEIs with similar institutional vision and mission statements may have similar and overlapping attributes and quality outcomes (Section 17, Article IV of CMO No. 46 s. 2012). Escrigas, et.al (2011) reiterated that mainstreaming the goal of sustainable development in university formal written statements like policies, vision, and mission strategies helps to show institutional commitment to sustainable practices.

1. Institutions committed to sustainability create certain positions and committees, as well as engage in certain practices, which reinforce this commitment.

Please check (√s) which of the following are present on your campus:

Table 2 shows the responses of the participants tabulated below. The table below shows that the different local colleges had positions and committees on environmental council or task force based on their common answers it is integrated in Locality or Local Government Units since the college is part of the LGU. In their college, they have conducted orientation programs for sustainability for faculty and staff in the part of economic, social responsibilities, and environmental concerns during their student orientation before the regular start of classes and faculty orientation weeks before the regular start of classes (based on interview and focused group discussions).

Table 2. Institutional Positions and Committees for Sustainability

Indicator	Local Colleges				
	A	B	C	D	E
Environmental Council or Task Force	√	√	√	√	√
Environmental Coordinator ( ) student or ( ) staff member	√				
Dean of Environmental Programs or Director of Sustainability Programs (a high-level officer responsible for these activities)					
Energy Officer					
Green Purchasing Coordinator					
Institutional Declaration of Commitment to Sustainability/Environmental Responsibility					
Orientation programs on sustainability for faculty and staff	√	√	√	√	√
Socially responsible investment practices and policies		√		√	√
Regularly conducted environmental audits					

3. How is a concern for, and commitment to, sustainability given broad visibility on your campus (for example, with guest speakers, conferences, Earth Day celebrations, etc.)?

Please describe key events that have happened in the past year:

Local Colleges A, B, C, D, and E had common answers:

They answered that they have followed the observance of Earth Hour every year and attended and conducted training, seminars, workshops, and conferences.

The conduct of seminars and training and the observance of "Earth Hour" of the locally-established HEIs are merely proofs that they were showing concern and commitment towards the road for sustainable institutions. According to Botman (2009) …higher education remains the "pedagogy of hope" through which future opportunities and future successes can be achieved.

Escrigas, et. al (2011) on their the study, it recommends capacitating universities in education for sustainable development (ESD) through training programs, and workshops for senior management, as well as assisting them in

setting up ESD strategies and coordinating units. Universities are also encouraged to target mainstreaming sustainability in structures that influence the functioning of the whole university, for example, written policy statements, to ensure that sustainability becomes a university-wide initiative.

4.   a) Please describe the greatest strengths of your institution in terms of sustainability.

Local Colleges A, B, C, D, and E had similar answers:

> *They answered that the presence of different student organizations/clubs that advocate sustainability served as their greatest strengths.*

b) Please describe the greatest weaknesses of your institution in terms of sustainability.

Local Colleges A, B, C, D, and E had similar answers:

> *They answered the lack of adequate appropriations for sustainability.*

> *Note: On this part, Local College B had no response because "ingon siya dili siya ka identify sa weakness nila" (according to her she cannot identify their greatest weaknesses.)*

The strengths and weaknesses of the locally-established HEIs based on their answers were the advocacy that posters the functions of the existing students' clubs and organizations. They believed that the actions and involvement of students and student leaders to the community is helpful for the institution's sustainability but they have identified that there is a lack of adequate appropriations from the LGUs to support their programs of enrichment. But the report of Escrigas et. al (2011) that the direct involvement of student groups in sustainability issues was low in most of the institutions. It further elaborated in the same report that sustainable development in universities should start by targeting university leaders as they have the authority to positively influence policies and the adoption of sustainability initiatives by staff members. University leaders" buy-in can be attained through short courses and/or workshops aimed at improving their understanding of sustainable development and the role that their institutions can play in promoting it.

5.   a) Please describe the key factors that support the advancement of environmental and sustainability issues on your campus.

> *In this question, only Local College A answered, and she said the active involvement of the college in terms of trainings, seminars, conferences, and undertaking projects for environment and sustainability.*

b) What factors do you think account for resistance to or lack of responsiveness to these concerns?

> *In this question, Local Colleges A, C, and D answered with similar contents and said they do have little idea about sustainability and some of their employees resist change and some do not like to be out of their comfort zones.*

> *Note: Local Colleges B and E had no response.*

The active participation in seminars, training, and conferences by the leaders, and faculty of local HEIs is one of the key factors to support institutional sustainability but the resistance of some employees to change for the institution may not be helpful in attaining its goals. Staff orientation, awareness, and exchange programs in sustainable development can help equip university employees with sustainability issues. Not all university employees have the knowledge and understanding of sustainable development. There is a need for initiatives that develop sustainability awareness among employees…this may perhaps be one of the areas the Leadership Development (Escrigas, et. al, 2011).

6. a) What "next steps" are planned at your college or university to strengthen your commitment to sustainability (such as an energy conservation initiative, a sustainable food program, a course requirement on sustainability, or a new strategic plan reflecting sustainability)?

Local College A answered:

> *"My aggressive promotion and dissemination of the projects and programs geared towards sustainability."*

Local College B answered:

> *"I have to integrate the idea that I have learned from these seven critical dimensions of higher education specifically tailored to the context of sustainability to our new strategic plans for the next three years that will be held this month of May 2015".*
>
> *(This answer is closely similar to the answers of C and E)*

Local College D answered:

> *"Magtukod ko ug organization nga maoy mag - initiate ug mo-plan sa tanang projects and programs for sustainability". (I will create an organization that will initiate plans for all projects and programs for sustainability)*

b) What "next steps" do you feel ought to be taken?

Local Colleges A, B, C, D, and E had a common answer to this question:

> *They feel they ought to ought their all-out support from the different stakeholders and sectors of their respective colleges.*

The positive outlooks of the participants in integrating and promoting sustainability concerns in their respective institutions might give emphasis to developing projects and programs geared towards internationalization. Successful change strategies as emphasized by Fullan & Scott (2009) that is to use a process of 'steered engagement' which sets a small number of overall strategic priorities and then invites local groups/units to identify how best to implement them, given local capabilities, resources, student needs, area(s) of study and context.

4.2 CURRICULUM

Table 3 shows the ratings of the participants on the second critical dimension of higher education, the curriculum. It reveals that the mean is 2.40 which is qualitatively described as "a little" which further means that evidence shows regular performance. The college or university appropriately incorporates the concepts of sustainability into all academic disciplines and in liberal arts and professional education requirements, as well as into faculty and student research. Likewise, a firm grounding in basic disciplines and critical thinking skills is essential to pursuing a sustainable future (Clugston and Calder, 2009).

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

On question,

7. Indicate the extent to which your institution offers courses which address topics related to sustainability. (Such topics could include globalization and sustainable development; environmental policy and management; environmental philosophy; nature writing; land ethics and sustainable agriculture; urban ecology and social justice; population, women and development; sustainable production and consumption; and many others.) [Please circle the appropriate number on this and the following questions]

> *Local Colleges A and E answered 3 which means "quite a bit" and it further means that the evidence show good performance and the rest (local Colleges B, C, and D rated 2 which means "a little" and further means that evidence shows regular performance.*

   Please list any courses you are aware of in which such topics are taught:

> *All local colleges have common answers and they answered, "environmental management".*

8. What courses do you regard as essential that are not being taught?

> *Common answers to all local colleges participated in this study and they said "Engineering courses" they regard as essential that are not being taught.*

9. Indicate the extent to which sustainability is a focus woven into traditional disciplinary education in science, math, literature, history, the arts, etc.?

> *Local Colleges A, B, C, D, and E answered that "it is already integrated in the curriculum of the general education subjects. Hence, the participants rated the extent with a mean of 2.31 which means "a little" and it further means that evidence shows poor performance by the local college.*

10. Are undergraduates required to take a course on issues related to the environment or sustainability?

> *Local Colleges A, B, C, D, and E answered that "it is already integrated into the syllabi of the general education subjects.*

11. The shift to sustainability requires critical thinking about the role of the institution in its social and ecological systems. Circle which of the following your institution (through individual, group, or departmental efforts) attempts to teach its students:

    a – how the campus functions in the ecosystem (e.g., its sources of food, water, and energy, as well as the endpoint of waste and garbage)

    b – a sense of place: the natural features, biota, history, and culture of the region

    c – the institution's contribution to a sustainable economy and sustainable local communities

    d – how the institution views and treats its employees (such as staff and faculty involvement in decision-making, their status, and benefits)

    e – the basic values and core assumptions that shape the content and methods of the academic disciplines

Local Colleges A, B, C, and E had a common response, they encircled d - how the institution views and treats its employees (such as staff and faculty involvement in decision-making, their status, and benefits) and e - the basic values and core assumptions that shape the content and methods of the academic disciplines. But for Local College D the participant encircled d only.

Table 3. Curriculum

Indicator	Mean	Qualitative Description
7. Indicate the extent to which your institution offers courses that address topics related to sustainability. (Such topics could include globalization and sustainable development; environmental policy and management; environmental philosophy; nature writing; land ethics and sustainable agriculture; urban ecology and social justice; population, women and development; sustainable production and consumption; and many others.)	1.96	A Little
8. Indicate the extent to which sustainability is a focus woven into traditional disciplinary education in science, math, literature, history, the arts, etc.?	2.31	A Little
Weighted Mean	*2.14*	A Little

Legend: 3.50 – 4.00 A great deal; 2.50 – 3.49 Quite a bit; 1.50 – 2.49 A little; 0.50 – 1.49   None; 0.00 – 0.49   Don't know

The participants of the local colleges were very much concerned about the environmental management courses which they were very much aware of especially the current environmental issues not only in their respective institutions but also in a wider range of concerns. Academic institutions vary considerably in how they approach sustainability: some concentrate on minimizing their ecological impact through changes in campus operations; others emphasize sustainability in the curriculum; yet others concentrate on university outreach and/or embed sustainable development principles in their overall development strategy (Escrigas, et. al, 2009).

4.3 RESEARCH AND SCHOLARSHIP

Table 4 shows the ratings of the participants on the third critical dimension of higher education, research, and scholarship. It reveals that the mean for this dimension is 1.79 which is qualitatively described as "a little" which further means that evidence shows regular performance. Since research and teaching are the fundamental

purposes of academic institutions, knowledge of sustainability is a critical concern in the hiring, tenure, and promotion systems (Clugston and Calder, 2009)

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

On question,

12. a) Estimate the amount of faculty research or scholarship being done in the various disciplines in the area of sustainability (for example, renewable energy, sustainable building design, ecological economics, indigenous wisdom and technologies, population and development, total environmental quality management, etc.).

> *Local College A answered that "My estimate is three research so far and I rate it also 3 which means quite a bit". While Local College D said that "In our college, I think only 1 did research on sustainability, so I rate it 2 which means a little". But Local Colleges B, C, and E had similar ratings on their corresponding college, and it is 1 which means none or there is a total lack of evidence on the indicator.*

 b) Estimate the amount of student research or scholarship being done in the various disciplines in the area of sustainability.

> *Local College A answered that "actually there is much student research every year in different disciplines because they are required to do so as part of the curriculum, so I would rate it 4 – a great deal for our institution." While Local Colleges B, D, and E said that "I think every curriculum or program, the students are required to do research specifically action research and others are related to sustainability, so I rate it 3 which means quite a bit but not a great deal because we are still a young institution". But Local College C said that "I will rate it 1 because I am not sure if all the student research is all about sustainability and only few research so far because we are still on the first batch of graduates and we require students to do research in group with 5 maximum number of members for each group."*

13. a) What percentage of faculty members teach or do research on sustainability issues?

> *Local College A answered that "my estimate is three researches. from my answer on the previous question so that's 3/27 or 11.11% and I rate it also 3 which means quite a bit". While Local College D said that "in our college, I think only 1 did research on sustainability, so that's about 3% I*

rate it 2 which means a little". But Local Colleges B, C, and E had similar ratings on their corresponding college, and it is 1 which means none or there is a total lack of evidence on the indicator.

 b) What percentage of faculty members do you estimate would be interested in teaching and research on sustainability issues?

Local Colleges A and C incidentally shared common thoughts and said, "All of us are encouraged to teach research so that is 100% but on sustainability issues maybe only a few of us because it is difficult to conduct studies in relation to sustainability."

But for the other Local Colleges B, D, and E they have no estimation since they don't even have an office center for research.

14. Does your institution have established multidisciplinary and interdisciplinary structures (such as an institute or center) for research, education, and policy development on sustainability issues?

Local Colleges A and C incidentally answered "yes" We do have an Office called Research and Development Office and conducted a series of trainings, seminars, workshops, and institutional conferences on research both faculty and students as researchers and participants. But other local colleges had no comments.

Table 4. Research and Scholarship

Indicator	Mean	Qualitative Description
12. a) Estimate the amount of faculty research or scholarship being done in the various disciplines in the area of sustainability (for example, renewable energy, sustainable building design, ecological economics, indigenous wisdom and technologies, population and development, total environmental quality management, etc.).	1.23	None
b) Estimate the amount of student research or scholarship being done in the various disciplines in the area of sustainability.	2.34	A Little
Weighted Mean	*1.79*	*A Little*

Legend: 3.50 – 4.00 A great deal; 2.50 – 3.49 Quite a bit; 1.50 – 2.49 A little; 0.50 – 1.49   None; 0.00 – 0.49   Don't know

 The participants of this study expressed how important is this area of concern for their respective local HEIs. Only a few faculty conducted research on sustainability or the like. Based on the recommendations of Escrigas et.al (2009) on their survey report, that is, encouraging and supporting staff (financially or in other ways) who undertake to train in the sustainable development field and supporting faculty and student research in sustainable development through incentives like research grants can encourage the involvement of members of the university in sustainability initiatives. This will also help to improve research outputs in sustainable development. Grants for master's and doctoral studies can end up encouraging students to undertake studies in sustainable development and therefore influence a career path in the sustainable development field.

4.4 OPERATIONS

Table 5 shows the ratings of the participants on the fourth critical dimension of higher education, operations. It reveals that the mean for this dimension is 2.52 which is qualitatively described as "a little" which further means that evidence shows poor performance. The institution has an "ecological footprint." In its production and consumption, the institution follows sustainable policies and practices: for example, CO_2 reduction practices and the use of emission control devices; sustainable building construction and renovation; energy conservation practices; local food purchasing program; purchasing and investment in environmentally and socially responsible products; and many others. Furthermore, these operational practices are integrated into the educational and scholarly activities of the school (Clugston and Calder, 2009).

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

On question,

16. What do you see when you walk around campus that tells you this is an institution committed to sustainability?

> *Local College A reiterated that "yes we practice what is due for us to follow and maybe we are too far from the ideal campus in which most of the existing universities here in our country have already practiced for how many years and even encouraging and promoting their developed projects and research that could help promote the clean and green program of the government." She added, "maybe perhaps we could maintain the level of sustaining our full support with the existing projects of the government for us to be always aware of the environmental concerns of our community."*

> *Local College B answered that "Maybe not this time but we will see what further programs we could initiate to poster sustainability in our campus."*

> *Local Colleges C, D, and E answered that "maybe our campus has no concrete evidence that is directly observable to anyone that we are an environment –eco–friendly institution because we were able to maintain the cleanliness of our surroundings, we have trash bins, we plant trees, we participated the Go green program…"*

17. To what extent are your operations practices integrated into the educational and scholarly activities of the school?

> *Local College A answered that "We have environmental projects like the Go Green Project of students and Pera sa Basura Program." So, she further stressed that it is a great deal for them, and she rated it 4.*

Local Colleges B, C, D and E have common thoughts and said that they also have programs in their school led by the students specifically, the clubs and organizations and part of their National Training Service Program (NSTP) activities.

For the level of assessment on practices of the operations of the locally-established higher education institutions, Table 8 reveals that waste reduction practices (such as e – communications, double – sided copying, waste free lunch program, etc.) got the highest mean of 3.68 which is qualitatively described as "a great deal" which means that it is in excellent performance, followed by recycling of solid waste (including paper, plastic, metal, e-waste, etc.) with a mean of 3.34 and qualitatively described as "a great deal" also, next is that building construction and renovation based on green design principles (LEED, etc.) with a mean of 3.21 and is described as "quite a bit" which can be interpreted as the evidence on the campus shows good performance, followed by water conservation practices (including efficient toilets, minimal irrigation, harvested rainwater, etc.) with a mean of 2.98 which described as "quite a bit", the energy conservation practices (including lighting, heating, cooling, ventilation, windows, etc.) had a mean of 2.56 described as "quite a bit", sustainable food program (such as local, organic, and/or fair trade food) had a mean of 2.44, green purchasing from environmentally and socially responsible companies (products are non-toxic, water and energy conserving, etc.) had a mean of 2.14 which is described as "a little", sustainable landscaping (emphasizing Integrated Pest Management practices, native plants, biodiversity, minimizing lawn, etc.) had a mean of 2.11 described as 'a little", and the items sustainable transportation program (including bicycle/pedestrian friendly systems, car pools, bus pass programs, biodiesel projects, etc.), environmental or sustainability assessments /audits, and reduction of toxic materials and radioactive waste had means of 2.03, 1.78, and 1.43 respectively.

Measuring the performance of an entire maintenance and operations department is no easy task. However, when done correctly it can paint a good picture of the organization's effectiveness in support of the educational process and ensuring the functionality of facilities (Florida Department of Education, 2014). Chapter 11.3 of this article, it added that maintenance and operations departments provide several support services that are vital to the educational process and extend the useful life of school facilities. As the primary service provider for schools and community colleges, it is important for administrators and individual staff members to recognize the customer service-oriented roles they play and how it determines the success of the department. One of the major challenges facing many maintenance and operations organizations today is providing quality services that meet or exceed customer expectations.

Table 5. Operations

Indicators	Mean	Qualitative Description
Operations		
16. To what extent are your operations practices integrated into the educational and scholarly activities of the school?	2.18	Quite a Bit
Practices		
1. Building construction and renovation based on green design principles (LEED, etc.)	3.21	Quite a Bit
2. Energy conservation practices (including lighting, heating, cooling, ventilation, windows, etc.)	2.56	Quite a Bit
3. Waste reduction practices (such as e-communications, double-sided copying, "waste free lunch" program, etc.)	3.68	A Great Deal
4. Recycling of solid waste (including paper, plastic, metal, e-waste, etc.)	3.34	A Great Deal
5. Sustainable food program (such as local, organic, and/or fair trade food)	2.44	Quite a Bit
6. Water conservation practices (including efficient toilets, minimal irrigation, harvested rainwater, etc.)	2.98	Quite a Bit
7. Sustainable landscaping (emphasizing Integrated Pest Management practices, native plants, biodiversity, minimizing lawn, etc.)	2.11	A Little
8. Sustainable transportation program (including bicycle/pedestrian friendly systems, car pools, bus pass programs, biodiesel projects, etc.)	2.03	A Little
9. Green purchasing from environmentally and socially responsible companies (products are non-toxic, water and energy conserving, etc.)	2.14	A Little
10. Reduction of toxic materials and radioactive waste	1.43	None
11. Environmental or sustainability assessments /audits	1.78	A Little

	Weighted Mean	2.52	Quite a Bit

Legend: 3.50 – 4.00 A great deal; 2.50 – 3.49 Quite a bit; 1.50 – 2.49 A little; 0.50 – 1.49   None; 0.00 – 0.49   Don't know

4.5 FACULTY, STAFF DEVELOPMENT, AND REWARDS

Table 5 shows the ratings of the participants on the fifth critical dimension of higher education, the faculty, staff development and rewards. It reveals that the mean for this dimension is 2.10 which is qualitatively described as "a little" which further means that evidence show regular performance. Since research and teaching are the fundamental purposes of academic institutions, knowledge of sustainability is a critical concern in the hiring, tenure and promotion systems (Clugston and Calder, 2009).

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

On question,

18. a) To what extent do criteria for hiring recognize faculty member contributions to sustainability   (in scholarship, teaching, or campus and community activities)?

> *Local Colleges A and C answered that "it's quite a bit so I will rate 3 because this area of concern is one of the factors to be considered during the hiring/recruitment process.'*

> *Local Colleges B, D, and E have commonly answered that "their rating is 2 which means a little, because in a real situation only occasionally we can ask about the contributions of the applicants to sustainability, we merely focus on their quality of teaching during teaching demonstration and qualifications."*

b) To what extent do criteria for tenure and promotion recognize faculty member contributions to sustainability?

> *Local College A and C answered that "it's a great deal so it is 4 because for now we adopted the newly imposed Strategic Performance Monitoring System (SPMS) by the Civil Service Commission that cuts across all ranks and the criteria for tenure and promotion is part and parcel of this system."*

> *Local Colleges B, D, and E have commonly answered, and it rated 2 which means a little. When further asked why? They answered: "Maybe not that of a great deal because this is just a very young institution and we are about to build our culture, a culture that advocates quality education and output."*

19. To what extent do criteria for hiring and promotion recognize staff member contributions to sustainability (in regular responsibilities and campus and community activities)?

> *Local College A and C answered that "it's a great deal so it is 4 because for now we adopted*

the newly imposed Strategic Performance Monitoring System (SPMS) by the Civil Service Commission that cuts across all ranks and the criteria for tenure and promotion is part and parcel of this system."

Local Colleges B, D, and E have commonly answered, and it rated 2 which means a little. When further asked why? They answered: "Maybe not that of a great deal because this is just a very young institution and we are about to build our culture, a culture that advocates quality education and output."

20. To what extent does your college or university provide significant faculty and staff development opportunities to enhance understanding, teaching, and research in sustainability?

All Local Colleges that participated in this study have commonly rated it 2 which means a little. They stressed that they have the annual appropriations for faculty and staff development but are subject to the availability of funds and the urgency of needs.

Table 6. Faculty and Staff Development and Rewards

Indicators	Mean	Qualitative Description
18. a) To what extent do criteria for hiring recognize faculty member contributions to sustainability (in scholarship, teaching, or campus and community activities)?	2.40	Quite a Bit
b) To what extent do criteria for tenure and promotion recognize faculty member contributions to sustainability?	2.00	A Little
19. To what extent do criteria for hiring and promotion recognize staff member contributions to sustainability (in regular responsibilities and campus and community activities)?	2.00	A Little
20. To what extent does your college or university provide significant faculty and staff development opportunities to enhance understanding, teaching and research in sustainability?	2.00	None
Weighted Mean	*2.10*	*A Little*

Legend: 3.50 – 4.00 A great deal; 2.50 – 3.49 Quite a bit; 1.50 – 2.49 A little; 0.50 – 1.49   None; 0.00 – 0.49   Don't know

4.6 OUTREACH AND SERVICE

Table 7 shows the ratings of the participants on the sixth critical dimension of higher education, outreach and service. It reveals that the mean for this dimension is 1.79 which is qualitatively described as "a little" which further means that evidence shows regular performance. The institution is engaged in outreach and forming partnerships both locally and globally to enhance sustainability. The college or university supports sustainable communities in the surrounding region and relationships with local businesses that foster sustainable practices (Clugston and Calder, 2009).

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

On question,

21. A sustainable institution supports sustainable community development in its local area and in the surrounding region through projects and partnerships with primary and secondary schools, local governments and businesses. It may also seek international cooperation in solving global environmental justice and sustainability challenges through conferences, student/faculty exchanges, etc. To what extent is your institution involved in sustainable development work through formal partnerships or relationships at regional, national or international levels?

> *Local College A and C rated 3 and answered that "they have attended trainings and conferences at regional and national level on sustainability. In their college, they have an office that is in – charge of linkages and placement; they have adopted barangay where they can work on their outreach programs…"*

> *Local Colleges B, D, and E rated 1 and answered that they also have programs and activities involving students and the Local Government Unit (LGU) like feeding in the communities, bloodletting, etc.*

22. What local sustainability-related community service, service learning and/or internship programs exist at your institution?

> *All Local Colleges A, B, C, D, and E answered that they also have programs and activities involving students and the Local Government Unit (LGU) like feeding in the communities, bloodletting, etc. We also have internship programs with a memorandum of agreement between the institution and companies, the Department of Education for Pre–Service Teachers, barangays, and other stakeholders.*

23. Institutions committed to sustainability provide students with specific opportunities and settings. Please check (√) which of the following are present on your campus:

> *Local Colleges have unanimously checked only two items as revealed in Table 10, they checked that they have orientation program/s on sustainability for students and create student group/s with an environmental or sustainability focus.*

Table 7. Students Opportunities and Settings

	Local Colleges				
	A	B	C	D	E
● Student Environmental Center					
● Ecology House or Sustainable Dormitory					
● Orientation program(s) on sustainability for students	√	√	√	√	√
● Student Group(s) with an environmental or sustainability focus	√	√	√	√	√
● Other:					

24. How does your college or university encourage students to consider sustainability issues when choosing a career path?

Table 8 below shows the students' career path on sustainability issues. It reveals that the participants in this study are aware of the college's direction toward students' career path through job fairs and career counseling focused on work in sustainable enterprises and pledge of social and environmental responsibility.

Table 8. Students' Career Path on Sustainability Issues

	Local Colleges				
	A	B	C	D	E
● Job fairs and career counseling focused on work in sustainable enterprises	√	√	√	√	√
● Pledge of social and environmental responsibility	√	√	√	√	√
● Other/s					

4.7 STUDENT OPPORTUNITIES

Table 9 shows the ratings of the participants on the seventh critical dimension of higher education, student opportunities. It reveals that the mean for this dimension is 2.44 which is qualitatively described as "quite a bit" which further means that evidence shows good performance. According to Clugston and Calder (2009) that there should have institutional support and campus student life services that emphasize certain practices, such as a) new student orientation, scholarships, internships, and job placement counseling related to community service, sustainability and/or justice issues; b) an Environmental or Sustainability Council or Task Force, an Environmental Coordinator or Curriculum Greening Officer; c) regularly conducted environmental audits; d) prominent public, student, and staff celebrations of sustainability on campus (for example, lectures, conferences, Earth Day celebrations, etc).

During the interview and focused group discussions with the participants in each college, the following inquiries had transpired:

Table 15. Level of Assessment of the Local HEIs' Sustainability – Outreach and Service

Indicators	Mean	Qualitative Description
21. A sustainable institution supports sustainable community development in its local area and in the surrounding region through projects and partnerships with primary and secondary schools, local governments and businesses. It may also seek international cooperation in solving global environmental justice and sustainability challenges through conferences, student/faculty exchanges, etc. To what extent is your institution involved in sustainable development work through formal partnerships or relationships at regional, national or international levels?	1.78	A Little
Student Opportunities		
25. To what extent are student groups across campus directly involved in sustainability initiatives?	2.44	Quite a Bit

On question,

24. To what extent are student groups across campus directly involved in sustainability initiatives?

All Local Colleges answered that "students are
directly involved in any activities through their

> *organized Supreme Student Council, Go Green Project Teams, the existence of the different clubs recognized by the college."*

The emergence of promoting quality education towards the quality of life of each individual or student, HEIs shall encourage students to be involved in sustainability-related activities on campus. According to Escrigas, et.al (2011) …students need to be encouraged to participate in outreach programs for sustainable development. They can also undertake applied sustainable development research intended to solve local community challenges as part of outreach and community programs. This goes a long way in promoting the relevance of the university in the local community in which it is situated.

CONCLUSIONS

In terms of critical dimensions of higher education, the study found that administration, mission, and planning have the highest mean, followed by operations, student opportunities, curriculum, faculty and staff development and rewards, and research and scholarship. The dimension with the lowest mean is outreach and service. Among the locally-established higher education institutions, administration, mission, and planning; operations; and student opportunities were identified as the top-performing dimensions, indicating good performance with a qualitative assessment of "quite a bit." However, curriculum; faculty, staff development and rewards; research and scholarship; and outreach and service were described as having regular performance with a qualitative assessment of "a little." Based on the qualitative findings, several conclusions can be drawn. Firstly, the Vision, Mission, Goals, and Objectives (VMGO) of locally-established HEIs align with the commitment to sustainability. Secondly, these institutions value and involve their employees in decision-making processes, provide appropriate status and benefits, and shape academic disciplines based on core values and assumptions, reflecting their engagement with social and ecological systems. Thirdly, only a small percentage (approximately 11%) of faculty members teach or conduct research on sustainability issues.

Moreover, participants indicated a significant gap between their institutions and the ideal campus models practiced by existing universities in the country for many years. These universities actively promote projects and research that support the government's clean and green program. The adoption of the Strategic Performance Monitoring System (SPMS) by participants, which includes criteria for tenure and promotion, was also noted. Furthermore, budget appropriations for faculty and development programs are contingent upon fund availability and the urgency of needs. Locally-established d HEIs actively contribute to sustainable community development in their local areas and surrounding regions through projects and partnerships with primary and secondary schools, local governments, and businesses. Participants have attended sustainability-related training and conferences at regional and national levels. The institutions have dedicated offices responsible for linkages and placement, and they have adopted a specific community (barangay) for outreach programs. Lastly, students play a direct role in various activities through their organized Supreme Student Council, Go Green Project Teams, and recognized college clubs.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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