

## **Implementation and Challenges of Education for Sustainable Development in Philippine State University: An Explanatory Sequential Inquiry**



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**ABSTRACT:** The education sector is one of the vital stakeholders in the functional transformation of our world through the United Nations Sustainable Development Goals (UN SDGs). Higher Education Institutions (HEIs) as an education sector is one of its enablers by carrying out sustainable development through Education for Sustainable Development (ESD). But, only a few universities could implement ESD holistically and reported its implementation. Hence, using explanatory-sequential inquiry, this study explored the extent of ESD implementation and the challenges encountered in one state university in Central Philippines through its greening program. The results revealed that the university reached a great extent of ESD implementation. This means that the indicators of the five pillars of the greening program were often observed in the whole university and per campus, respectively. Despite this rating, the university still faces several implementation challenges. However, based on qualitative inquiry, ESD implementation is still promising. It just needs to continually improve by working on the different opportunities for improvements using the whole institution approach. Consequently, the greening program will be instrumental in realizing the vision of the school to become a GREEN institution by 2030 at the same time, contribute to the priority areas of ESD through reorienting education to address sustainability and creating public awareness and understanding of sustainability.

**KEYWORDS:** Social science, Sustainable Development Goals (SDG), Education for Sustainable Development (ESD), explanatorysequential, Central Philippines

### **I. INTRODUCTION**

In 2015 United Nations (UN) Member States adopted the UN 2030 Agenda for Sustainable Development. It has 17 Sustainable Development Goals (SDGs), which laid down the framework and action plan for people, the planet, and prosperity to address the most pressing issues on the environment, economy, and society (De la Poza et al., 2021; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021). The SDGs entail complex economic, environmental, and social challenges. Hence, resolving them requires a functional transformation of how people interact with our planet. In this transformational journey, several stakeholders have critical roles in fulfilling SDGs. One of the vital stakeholders in the education sector (Sustainable Development Solutions Network [SDSN] Australia/Pacific, 2017).

The educational institution is widely considered to be an enabler. It has a leading role in carrying out sustainable development (Gholami et al., 2020) through Education for Sustainable Development (ESD) (Lazarov & Semenescu, 2022) and SDGs at the local, national, and global levels (Mohanty & Dash, 2018; UNESCO, 2020). Specifically, Higher Education Institutions (HEIs) have a vital part in the furtherance of the SDGs through their expertise in research and education (De la Poza et al., 2021), community engagement, and advisory services (Bhowmik et al., 2017). It has a profound moral responsibility to increase awareness, knowledge, skills, and values to create a just and sustainable future. Consequently, it can build tomorrow's decision-makers, problem solvers, and change agents who can think critically, cope with ethical dilemmas and apply a systemstinking approach in facing severe and complex societal problems (Gokool-Ramdoe & Rumjaun, 2017; Konstantinos-Loukianos, 2018).

The Commission on Higher Education (CHED), as the regulatory body for all Higher Education Institutions (HEIs), is under the Office of the President of the Republic of the Philippines, has encouraged all public HEIs to integrate ESD in tertiary education as a response to UNESCO's Agenda 21 (Balanay & Halog, 2016) and signified its support to promote Ambisyon Natin 2040 (Ambisyon Natin 2040, 2017). These two commitments support SDGs to attain the aspirations of present and future generations of Filipinos (The Voluntary National Review of the Philippines, 2019).

In light of the above-mentioned scenarios, one of the state universities in Central Philippines launched a greening

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program in 2012. This greening program is a continuing transformative journey of the institution to promote ESD. In this pursuit, the core dimensions of the institution's operations were labeled as five pillars of the greening program: green campus, green community, green culture, green research, and green technology. In 2019, the said commitment and the institution's vision and mission were revisited and renewed, launching the acronym GREEN in its vision. GREEN stands for Good governance, Research oriented, Extension – driven, Education for Sustainable Development, and Nation- building. Consequently, the green campus in the five pillars was changed to a green curriculum (Carlos Hilado Memorial State College, 2019). It means that the concerted efforts of the institution will be directed toward achieving sustainable development competencies and SDGs. Hence, as one of the HEIs, the institution needs to evaluate its implementation of ESD from 2018 to the present, particularly on how well the Greening Program pursued ESD in pursuit of SDGs.

Meanwhile, there are several studies conducted concerning ESD – transforming school culture through ESD (Down, 2015), bridging ESD and transformative learning (Schnitzler, 2019), acquisition of ESD competencies for social transformation (Violanda & Madrigal, 2021; Scherak & Reickman, 2020), HEIs status in responding to ESD (Malaga, 2019), integration of SDG in the university curriculum (Chaleta et al., 2021), green practice index of faculty of state educational institution in the Philippines (Malaga, 2018), barrier analysis towards higher education sustainability (Blanco-Portela et al., 2018; Gholami et al., 2020). Meanwhile, Sáez de Camara et al. (2021) emphasized that only a few universities have holistically implemented the ESD. Chaleta et al. (2021) further emphasized that there is still much to be done in promoting SDGs at the university level. It entails the involvement of the various units of the institution to attain sustainability. Therefore, this institution's approach to integrating ESD and SDGs among HEIs needs attention and reporting. Hence, this explanatory sequential design is conducted to capture the holistic implementation of the topic to be investigated.

This paper assessed the extent of implementation of Education for Sustainable Development (ESD) of a State University in Central Philippines during the AY 2022-2023 in curriculum, research, culture, community, and technology. Furthermore, it investigated the challenges encountered by the institution in implementing ESD. The study's findings were utilized as a basis for an enhanced action plan on ESD, focusing more on a green curriculum towards achieving the institution's vision to be a leading GREEN institution by 2030.

## II. PURPOSE OF THE STUDY

This explanatory sequential mixed method study aimed to assess the extent of implementation of Education for Sustainable Development (ESD) of a State University in Central Philippines during the Academic Year 2022-2023 in the areas of curriculum, research, culture, community, and technology as assessed by school administrators and faculty when they are taken as a whole and compared according to campus.

Likewise, it investigated the challenges encountered by the assessors in implementing ESD in pursuit of SDGs. In addition, it explained and deepened the implementation practices and opportunities for improvement of the State University in the implementation of ESD in pursuit of SDGs.

## III. METHODOLOGY

This study utilized the explanatory sequential design of a mixed-method approach. In this design, the researcher conducted the quantitative phase and followed up on specific results with a subsequent qualitative phase to help explain the quantitative results. The qualitative phase was implemented to explain the initial results more thoroughly (Creswell & Plano Clark, 2018). In this study, quantitative and qualitative data were utilized to deepen the understanding and analysis of the extent of implementation of ESD in pursuit of SDGs as assessed by the respondents/participants.

In the first phase, descriptive design was utilized. The descriptive approach described the extent of implementation of ESD in pursuit of SDGs as assessed by faculty and administrators when they were taken as a whole and grouped according to campus.

Meanwhile, the second phase was qualitative explorations. The researcher identified the specific quantitative results that called for additional explanation and used these results to guide the development of the qualitative strand. Specifically, the researcher developed or refined the qualitative research questions, purposeful sampling procedures, and data collection protocols following the quantitative results. Hence, the qualitative phase was connected and dependent on the quantitative results (Creswell & Plano Clark, 2018).

### A. Quantitative Phase

The data in this study were sourced from the 126 regular faculty members and 67 administrators from the four campuses of the university in Central Philippines for the AY 2022-2023. They were chosen using a stratified random sampling method. It ensured that each stratum of a given population was sufficiently represented.

A validated researcher-made instrument was utilized to gather the descriptive data that determined the extent of

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implementation of ESD in pursuit of SDGs. The items in the instrument were based on the indicators of the five pillars of the greening program of the university, namely green curriculum, green research, green culture, green community, and green technology. The questionnaire was divided into three parts. Part I reflected the self-reported profile of the respondents, which included a type of assessor (faculty or administrator), their campus (categorized as Campus A, Campus B, Campus C, and Campus D), and the year started in the university. Part II contained Likert – type statements consisting of 30 questions that will assess the extent of implementation of ESD in pursuit of SDGs based on the target indicators in the blueprint of the greening program of the university.

In the conduct of the study, permission was obtained from the President of the university through the Vice-President for Administration. When all necessary permissions, reliability, and validity were established, the research instrument was turned into google forms. Before the administration of the questionnaire, the respondents were informed about the purpose, scope of the study, parts of the questionnaire, and the willingness of the respondents to participate in the study. The researcher sent the google form link to the personal email of the respondents. The respondents were given ample time to answer the survey questionnaire online. After the data had been received through a google form, it was organized, collated, and submitted to the statistician for data analysis. All the gathered responses were kept until the second phase of the data was done.

In this phase, descriptive analysis was used using appropriate statistical tools. Mean was utilized to analyze the extent of implementation of ESD in pursuit of SDGs as assessed by the administrators and faculty. At the same time, frequency count and percentage distribution were used to determine the topmost challenges they encountered or observed in the extent of ESD implementation through the university's greening program.

### B. Qualitative Phase

In this phase, purposive sampling was utilized to determine the participants in the interview. The researcher selected the participants from the quantitative phase who passed the set inclusion criteria – at least five years in service in the university, a member of the greening task force or implementer of the greening program, and willing to participate. There were eight (8) participants in the interview, four (4) from the faculty and four (4) from the administrators equally representing the four campuses of the university. The development of a semi-structured interview questionnaire was based on analyzing the results from the quantitative phase. The interview questions were derived from the overall results of the quantitative data. The interview schedule was utilized to open rich discussions and deepen the data gathered in the preceding phase.

The interview was conducted using semi-structured, face-to-face, and virtual individual in-depth interviews among selected participants. Guided by the interview protocol, the researcher explained the research's purpose, the interview's duration, the interview approach (content, confidentiality, consent, and recording methods), and the use of the data. Before the interview began, the participants were allowed to clarify any points and were asked to sign the written consent to confirm that they were willing to proceed. Also, observance of ethical considerations was upheld in the whole duration of the study.

Two sets of sessions were conducted; one primary interview that lasted at least 50 minutes to one and half hours on average and the follow-up session, which was shorter and aimed at members checking the transcripts. All interviews were done privately, and their responses to the interviews were recorded with their permission. During the interview, participants were advised to state their responses in a language they were comfortable with to express their thoughts clearly.

The interview ended with a debriefing which reiterated the purpose of the study and that the data will be presented in the professional community. The researcher also emphasized confidentiality concerning the interviewee's identity and responses. After each interview, verbatim transcription was generated, then conducted member checking, and proceeded with data explication process anchored on Lichtman's 3Cs. The generated themes were sent to expert validators for audit trail.

Recursive textual data analysis was employed using Lichtman 3Cs - coding, categorizing, and identifying concepts to process the gathered data. It was utilized to help the researcher analyze the transcripts of the interview. To facilitate this, the researcher accomplished the following steps:

First, read and reread the transcribed data of the interviews so that the researcher will become more familiar with the transcriptions. Second, segmented and coded the statements that captured and reflected the broad insights of the participants on the great extent of implementation of ESD in pursuit of SDGs. Third, categorized the insightful statements into core concepts/themes. Fourth, generated thematic insights from the core themes of their insights through reading and rereading until a conceptual structure emerged from the data. To further describe and explain thematic insights, the researcher quoted the verbatim statements of participants from the interview transcripts. Lastly, articulated the eidetic insight in the light of the existing research, which described the meaning and essence the participants ascribed (an insider perspective) to the phenomenon.

**Data Trustworthiness:** The research design in this phase has limitations due to its interpretative nature regarding reliability and generalizability. Trustworthiness is a way researchers can persuade themselves and readers that their research findings are worthy of attention (Lincoln & Guba, 1985). The trustworthiness of data and results were assessed in terms of credibility, transferability, dependability, and confirmability to strengthen the interpretative analysis's validity.

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**Credibility.** The credibility of a study means that researchers or readers can recognize it once confronted with the experience (Guba & Lincoln, 1989). It refers to the believability of the research findings. In this study, the researcher used member checking to establish the credibility of the findings. It involved returning the interview transcripts to the participants and allowing them to check the transcripts to confirm whether their experiences were accurately described. Also, some vague areas during interviews were clarified among the participants in the second interview to ensure that the data reflected in the analysis aligned with the meaning they gave to their experience.

**Transferability.** Transferability refers to the generalizability of the inquiry. In qualitative research, this concerns only to case-to-case transfer (Tobin & Begley, 2004). It signifies the applicability of the findings to others in similar situations. As applied in this study, the researcher provided dense or thick descriptions of data gathered from the participant's experiences of the extent of implementation of ESD in pursuit of SDGs. In this manner, those who wish to make the study's findings a reference to their context can assess its transferability.

**Dependability.** It can be achieved if researchers ensure the research process is logical, traceable, and well-documented (Tobin & Begley, 2004). It refers to the consistency of the research findings. In this study, the researcher employed an external auditor who is an expert in the content and qualitative research methodology to conduct the audit process to determine the stability of the data. Also, the researcher used documented field notes and transcribed and recorded interviews to ensure the process was traceable.

**Confirmability.** This will establish that the researcher's interpretations and findings are derived from the data. It requires the researcher to demonstrate how conclusions and interpretations have been reached (Tobin & Begley, 2004). It indicates the neutrality or objectivity of the data. In this study, the researcher practiced bracketing to suspend her personal biases. The interpretation of the data was solely anchored on the gathered data. Finally, an audit trail was employed. In this process, the formulated themes, built up from the codes and categories, were submitted to an external auditor. The number of used significant statements from fifty (50%) percent or more participants were audited, and their consistency with the transcriptions was established. Consequently, a certification was obtained confirming that the cited significant statements existed and were solely derived from the participants' responses.

## IV. RESULTS AND DISCUSSION

### A. Quantitative Results

**1.) Extent of Implementation of Education for Sustainable Development (ESD) in the Whole University:** Data in Table 1 show the extent of implementation of ESD in the whole university. The results indicate that when taken as a whole, the institution has a great extent of implementation of ESD in pursuit of SDGs ( $M = 3.83$ ,  $SD = 0.64$ ) as assessed by both the faculty and the administrators. This result depicts that the indicators for the extent of implementation of ESD in all five pillars of the greening program were often observed by the assessors in the whole university system. The mean rating for each pillar, namely green research ( $M = 3.97$ ,  $SD = 0.64$ ), green culture ( $M = 3.94$ ,  $SD = 0.61$ ), green community ( $M = 3.80$ ,  $SD = 0.75$ ), green curriculum ( $M = 3.72$ ,  $SD = 0.77$ ), and green technology ( $M = 3.62$ ,  $SD = 0.75$ ) aggregately resulting in a great extent of implementation of ESD in the whole university.

The ESD initiatives of the university revealed that green research got the highest mean. This implies that the university was able to establish its research agenda and anchor it to the nation's and region's research agenda. Also, it denotes that the faculty members are engaged in research that responds to the local challenges of the community and can promote social innovation. Consequently, create an impact on society in one way or another.

However, the obtained rating was contrary to the results of the study conducted by Malaga (2018) in the same institution. Among the five (5) greening pillars of the university and then college, green research gained a very low index. It was interpreted that there was a manifestation of the absence or deficiency of conscious endeavors of the faculty to engage or participate in green research undertakings (p.94). This difference in the results could imply that, through time, the university was able to review and revisit its research development agenda and priorities to align its research undertakings to ESD in pursuit of SDGs. This effort of the university led to the furtherance of the active research engagements of the faculty.

On the other hand, the lowest mean in green technology suggests that the university needs to develop more green technology initiatives that promote sustainability, circular economy, and green jobs. Moreover, it needs to assess and evaluate its ecological waste management system and the collaborative engagement of the faculty, staff, and students. Also, this result denotes that the university could mitigate the adverse effects of its activities on the environment through creativity and innovation, technology, facilities, and operations. The university can further develop eco-technological innovation and other design and application technologies that respond to sustainable production and consumption. Finally, it can make the most of the holistic role of technology education for sustainability citizenship (Wu & Shen, 2016).

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**Table 1. Extent of Implementation of Education for Sustainable Development (ESD) in the Whole University**

Variable	Curriculum			Research			Culture			Community			Technology			Implementation		
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int
Type of Assessor	3.61	0.74	GE	3.88	0.68	GE	3.89	0.64	GE	3.68	0.81	GE	3.50	0.79	GE	3.73	0.68	GE
Administrator																		
Faculty	3.78	0.71	GE	4.01	0.62	GE	3.98	0.59	GE	3.86	0.71	GE	3.68	0.73	GE	3.88	0.61	GE
ampus Campus A																		
	3.51	0.77	GE	3.85	0.69	GE	3.86	0.61	GE	3.51	0.76	GE	3.57	0.79	GE	3.69	0.66	GE
Campus B	4.00	0.70	GE	4.19	0.58	GE	4.21	0.50	VGE	4.10	0.73	GE	3.89	0.69	GE	4.09	0.57	GE
Campus C	3.57	0.67	GE	3.83	0.54	GE	3.88	0.49	GE	3.66	0.55	GE	3.56	0.63	GE	3.72	0.51	GE
Campus D	3.72	0.70	GE	3.96	0.67	GE	3.89	0.65	GE	3.80	0.77	GE	3.54	0.78	GE	3.80	0.66	GE
<b>Whole</b>	<b>3.72</b>	<b>0.72</b>	<b>GE</b>	<b>3.97</b>	<b>0.64</b>	<b>GE</b>	<b>3.94</b>	<b>0.61</b>	<b>GE</b>	<b>3.80</b>	<b>0.75</b>	<b>GE</b>	<b>3.62</b>	<b>0.75</b>	<b>GE</b>	<b>3.83</b>	<b>0.64</b>	<b>GE</b>

Note; 1.00-1.80=Very Low (VLE), 1.81-2.60=Low(LE), 2.61-3.40=Moderate (ME), 3.41-4.20=Great (GE), 4.21-5.00=Very Great (VGE)

**2.) Extent of Implementation of ESD Per Campus:** When grouped according to campus, all campuses, Campus A (M=3.69, SD = .66), Campus B (M= 4.09, SD = 0.57), Campus C (M=3.72, SD = 0.51), and Campus D (M= 3.80, SD = 0.66) still showed the great extent of the implementation of ESD respectively. Most of the stated indicators for each pillar were often observed or practiced in respective campuses. The standard deviation ranges between 0.50 - 0.66, indicating that the scores representing the respondents' responses were not that dispersed with the mean.

**3.) Extent of Implementation of ESD in Campus A:** Table 2 presents the extent of implementation of ESD in pursuit of SDGs in Campus A as of great extent. The assessors on this campus observed that the indicators of the five pillars of the greening program were often evident on their campus. However, the administrators rated the extent of implementation of ESD of green community and green technology pillars as moderate. It means they just observed indicators of these pillars being practiced or implemented. Though, in general, the highest mean was obtained by green culture (M = 3.86, SD = 0.61), and the green curriculum obtained the lowest (M = 3.51, SD = 0.77), and green community (M = 3.51, SD = 0.76).

In Campus A, since their highest mean is the green culture, it can be deduced that the assessors agreed that there was a clear and explicit articulation of sustainability in the vision, mission, and core values of the university. Also, it implies that policies, practices, and relationships that promote sustainability in the school's operations and processes were evident as manifestations of green culture.

Faham et al. (2017) underscored in their study that university's policies related to ESD increase the mutual perception of disciplines from each other and lead to interdisciplinary cooperation. The starting journey of the university in its greening program was built upon the dimensions of sustainability principles. These sustainability principles were manifested in the efforts of the institution to address issues of gender equity, cultural diversity, and respect for people with handicaps. Also, it adhered to transparency and fairness in all its practices and dealings (Malaga, 2019).

Conversely, the green curriculum and the green community got the lowest mean, which implies that the assessors still often observed programs, projects, or activities related to integrating ESD and SDGs in its teaching and learning processes. However, for this campus, more focus on improving the strong connection between community extension and curriculum can be considered. The active participation of faculty, students, and staff can be further reassessed. Consequently, it entails more effort from the academic unit to undertake a transformative pedagogy and to encourage inter and transdisciplinary projects (UNESCO, 2017). Zhang (2020) underscored that the ESD framework could create a systematic and integrated approach to education and training. Accordingly, learners will be able to acquire and develop creative and critical thinking skills that will enable them to become decisive amid uncertainty and complex-problems – solving situations.

In addition, with a green community, the campus earned a great extent of implementation of ESD. It suggests that in their extension programs, they were able to integrate SDGs that helped address the challenges of time. These efforts of the campus on its extension services served as a good jumpstart for ESD (Flores et al., 2021). According to Purcell et al. (2019), the school is a microcosm of society. With this setup, it becomes a test bed for exploring SDG solutions. It connects the university and the society it serves locally and globally. Hence, partnership with community partners boosts local capacity toward sustainability (Malaga, 2019). Finally, the proactive HEIs realize their brokering and bridging function, thus utilizing their international networks to serve the regional need or even take agency and set the agenda (Radinger-Peer & Pflitsch, 2017).

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**Table 2. Extent of Implementation of ESD in Campus A**

Variable	Curriculum		Research		Culture		Community		Technology		Implementation							
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int			
Type of Assessor																		
Administrator	3.43	0.69	GE	3.70	0.61	GE	3.67	0.58	GE	3.20	0.68	ME	3.19	0.82	ME	3.47	0.60	GE
Faculty	3.54	0.82	GE	3.90	0.72	GE	3.92	0.61	GE	3.60	0.78	GE	3.71	0.75	GE	3.77	0.68	GE
<b>Whole</b>	<b>3.51</b>	<b>0.77</b>	<b>GE</b>	<b>3.85</b>	<b>0.69</b>	<b>GE</b>	<b>3.86</b>	<b>0.61</b>	<b>GE</b>	<b>3.50</b>	<b>0.76</b>	<b>GE</b>	<b>3.57</b>	<b>0.79</b>	<b>GE</b>	<b>3.69</b>	<b>0.66</b>	<b>GE</b>

Note; 1.00-1.80=Very Low (VLE), 1.81-2.60=Low(LE), 2.61-3.40=Moderate (ME), 3.41-4.20=Great (GE), 4.21-5.00=Very Great (VGE)

**4.) Extent of Implementation of ESD in Campus B:** As shown in Table 3, there is a great extent of implementation (M=3.69, SD=.66) of ESD in pursuit of SDGs in Campus B when taken as a whole. The assessors on this campus observed that almost all indicators of the five pillars of the greening program were often observed. The highest mean was yielded by green culture (M=4.21, SD=.50) and interpreted to a very great extent, implying that almost if not all the indicators of green culture are consistently observed in the campus. The standard deviation of .50 indicates that the respondents' responses' scores were not dispersed concerning the mean. On the other hand, green technology got the lowest mean (M=3.89, SD=.69) and was interpreted to a great extent.

In the context of Campus B, green culture reached a great extent of implementation because there was a clear and explicit articulation of sustainability and ecological responsibility in the institution's vision, mission, and core values as observed in the campus. Similarly, the rating indicates that the campus members are committed to good governance, critical thinking, and systems thinking of its operations, practices, and processes. Also, it implies that the campus management can foster cooperation among the members of the campus to adhere to recycling, repurposing, and reusing systems. This interdisciplinary cooperation is one of the goals of ESD, which means that educational departments have links to each other. University policies on ESD can increase the mutual perception of disciplines each other, which will lead to interdisciplinary cooperation (Faham et al., 2017).

On the contrary, green technology earned the lowest mean but was still interpreted as a great extent of implementation. It indicates that frequently the campus implements the institution's integrated system that deals explicitly with waste management, and anyhow the active participation of students, faculty, and staff was often evident. This initiative around waste management is the most common entry point for ESD integration (UNESCO Office Bangkok and Regional Bureau for Education in Asia and the Pacific, 2018).

For further improvement of Campus B on green technology, the literature suggests that in developing a smart campus, there is a need to adopt information and communication technology leading to developing projects in smart initiatives. Consequently, a smart campus will become a learning campus that promotes lifelong learning as the basis for social, economic, and environmental development. It was also emphasized that the educational community needs to engage in research and innovation to help solve the fundamental problem of society and even the university itself (Mazutti et al., 2020).

**Table 3. Extent of Implementation of ESD in Campus B**

Variable	Curriculum		Research		Culture		Community		Technology		Implementation							
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int			
Type of Assessor																		
Administrator	4.09	0.93	GE	4.21	0.81	GE	4.33	0.72	VGE	4.15	0.84	GE	3.99	0.76	GE	4.17	0.76	GE
Faculty	3.96	0.60	GE	4.19	0.47	GE	4.16	0.38	GE	4.08	0.69	GE	3.85	0.67	GE	4.07	0.48	GE
<b>Whole</b>	<b>4.00</b>	<b>0.70</b>	<b>GE</b>	<b>4.19</b>	<b>0.58</b>	<b>GE</b>	<b>4.21</b>	<b>0.50</b>	<b>VGE</b>	<b>4.10</b>	<b>0.73</b>	<b>GE</b>	<b>3.89</b>	<b>0.69</b>	<b>GE</b>	<b>4.09</b>	<b>0.57</b>	<b>GE</b>

Note; 1.00-1.80=Very Low (VLE), 1.81-2.60=Low(LE), 2.61-3.40=Moderate (ME), 3.41-4.20=Great (GE), 4.21-5.00=Very Great (VGE)

**5.) Extent of Implementation of ESD in Campus C:** Data in Table 4 show a great extent (M=3.72, SD= 0.51) of implementation of ESD in pursuit of SDGs in Campus C. This specific result denotes that the assessors on this campus often observed the stated indicators in the five pillars of the greening program. The standard deviation of .51 indicates that the respondents' responses' scores were not dispersed to the mean. Looking into per pillar, the green culture obtained the highest mean score (M=3.88, SD= 0.49), followed by green research (M=3.83, SD= 0.54), green community (M=3.66, SD= 0.55), green curriculum (M=3.57, SD= 0.67), while green technology gained the lowest mean score (M=3.56, SD= 0.63).

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In the context of Campus C, the great extent of ESD implementation of green culture means that its vision, mission, and core values articulated sustainability and ecological responsibility. This indicates that the campus and the university, in general, are moving towards becoming an ESD institution because the members of the campus share the school's values and principles. Consequently, creating this as a culture of the campus (Erasmus, n.d). Also, the practice of the 7Rs (rethink, refuse, reduce, repurpose, reuse, recycle, rot) of Sustainability and the Five S (sort, set in order, shine, standardize, sustain) system were often evident in offices, workstations, and learning facilities. Finally, it denotes that the members of the campus have a strong commitment to good governance and critical and systems thinking. These dynamics of the campus lead to positive interdependent relationships, ensuring the development of relationships established on equity, respect, and care for self and environment (Down, 2015).

Meanwhile, green technology got the lowest mean. This implies that the campus is low in the development of technology that promotes sustainability and green jobs. Also, the active participation of the faculty, staff, and students in the management of the materials recovery facility and composting site could be a challenge too. Lastly, technological innovation, as promoted and employed in the classroom to introduce sustainable solutions, is another challenge to address.

The mentioned realities on green technology in Campus C entailed educational technology among the members of the campus. Burgos (2020) cited in their study that educational technology helps eliminate high paper costs, thus allowing universities funds to be allocated to more technologies needed for teaching and learning. In Europe, it was found that digital technologies reduced waste in HEIs. The espousal of SD in campus operations concentrated on social balance and projects to advance waste reduction and energy efficiency (Lazarov & Semenescu, 2022).

**Table 4. Extent of Implementation of ESD in Campus C**

Variable	Curriculum		Research			Culture			Community			Technology			Implementation					
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int		
Type of Assessor																				
Administrator	3.43	0.72	GE	3.79	0.70	GE	3.96	0.55	GE	3.59	0.65	GE	3.56	0.62	GE	3.70	0.60	GE		
Faculty	3.64	0.65	GE	3.85	0.46	GE	3.84	0.47	GE	3.70	0.51	GE	3.55	0.65	GE	3.73	0.47	GE		
<b>Whole</b>	<b>3.57</b>	<b>0.67</b>	<b>GE</b>	<b>3.83</b>	<b>0.54</b>	<b>GE</b>	<b>3.88</b>	<b>0.49</b>	<b>GE</b>	<b>3.66</b>	<b>0.55</b>	<b>GE</b>	<b>3.56</b>	<b>0.63</b>	<b>GE</b>	<b>3.72</b>	<b>0.51</b>	<b>GE</b>		

Note; 1.00-1.80=Very Low (VLE), 1.81-2.60=Low (LE), 2.61-3.40=Moderate (ME), 3.41-4.20=Great (GE), 4.21-5.00=Very Great (VGE)

**6.) Extent of Implementation of ESD in Campus D:** As shown by the data in Table 5, there is a great extent (M=3.80, SD= 0.66) of implementation of ESD in Campus D when taken as a whole. The result tells us that the assessors on this campus observed that the indicators of the five pillars are often evident. The mean scores revealed that green research is the highest (M = 3.96, SD = 0.67), followed by green culture (M = 3.89, SD = 0.65), green community (M=3.80, SD = 0.77), green curriculum (M = 3.72, SD = 0.70) and green technology is the lowest (M = 3.54, SD = 0.78).

In the context of Campus D, green research earned the highest mean and a great extent of implementation. It means that the institution's agenda are aligned with the nation's and region's research agenda. At the campus level, Campus D established strong and active research linkages with LGUs, communities, and HEIs. This resulted in the active research engagements of the faculty members. Consequently, the research studies were utilized and, at any rate, contributed to the improvement of the quality of life and ecological well-being of its community and partners.

The above research endeavors exhibited the performance of the university in playing a vital role in achieving SDGs (Mazutti et al., 2020). The deliberate effort of the university in integrating sustainable development into its policies, like its research agenda, is one of the gateways to achieving SDGs. On the other hand, their research capacity can also offer critical analyses of the detrimental nature influence of HEIs on societal development (Wright et al., 2022). With this, indeed Lozano et al. (2018) are right. HEIs are the pinnacle of the academic system and play a role in global knowledge networks. These institutions delved into increasing the awareness, skills, and values of future professionals, decision-makers, and leaders through education and research.

Meanwhile, Campus D got the lowest mean in green technology. One of the cited indicators of green technology in the questionnaire was – each campus has effectively managed materials recovery facilities and composting with the active participation of concessionaires. This specific indicator got the lowest mean. It implies that the campus needs to orient the concessionaires of its greening program so that they can support and help promote the green initiatives of the campus, like not using single-use plastic, plastic straws, and Styrofoam container. Consequently, they can help lessen the production of plastic waste in campus.

Owojori et al. (2022) emphasized that disseminating information on environmental concerns among academic community members is vital to environmental education. It should be done because most people have limited knowledge of how to act sustainably. Making the concessionaires aware of their role in the greening program of the university can help them gain adequate knowledge on how they will act and contribute to the success of the greening program of the university.

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**Table 5. Extent of Implementation of ESD in Campus D**

Variable	Curriculum			Research			Culture			Community			Technology			Implementation		
	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int	M	SD	Int
Type of Assessor																		
Administrator	3.55	0.66	GE	3.85	0.65	GE	3.79	0.61	GE	3.65	0.82	GE	3.41	0.80	GE	3.67	0.65	GE
Faculty	3.83	0.71	GE	4.02	0.68	GE	3.95	0.68	GE	3.90	0.72	GE	3.63	0.77	GE	3.88	0.66	GE
<b>Whole</b>	<b>3.72</b>	<b>0.70</b>	<b>GE</b>	<b>3.96</b>	<b>0.67</b>	<b>GE</b>	<b>3.89</b>	<b>0.65</b>	<b>GE</b>	<b>3.80</b>	<b>0.77</b>	<b>GE</b>	<b>3.54</b>	<b>0.78</b>	<b>GE</b>	<b>3.80</b>	<b>0.66</b>	<b>GE</b>

Note; 1.00-1.80=Very Low (VLE), 1.81-2.60=Low(LE), 2.61-3.40=Moderate (ME), 3.41-4.20=Great (GE), 4.21-5.00=Very Great (VGE)

## 7.) Challenges in the Implementation of Education for Sustainable Development (ESD) in the Whole University

Universities worldwide have taken various initiatives to ensure their campus operates sustainably. However, emergent barriers came along the way in the middle of the process. Consequently, it challenged the practitioners and hindered its implementation's success (Gholami et al., 2020). This reality also holds in the context of the university in its implementation of ESD in pursuit of SDGs. Below are the perceived challenges in the five pillars of the greening program of the institution as assessed by the faculty and administrators.

### Green Curriculum

Data in Table 8 reveal that the most perceived challenge by the assessors in the implementation of the green curriculum was - that faculty are swamped by the number of hours dedicated to teaching and do not have time to work on other activities, followed by the limited training provided to all course coordinators and curriculum developers to orient curricula toward ESD/SDGs and incorporating green practices/SDGs into the course.

This result corroborates the results of the study of Ilisko et al. (2017). The researchers found that the teachers need more time to implement ESD using participatory methods in a vocational school curriculum. Their study highlighted that the main barrier was the need for more commitment, expertise, and time to introduce innovations in an overcrowded curriculum. Meanwhile, in the UK, changing the HEIs landscape is prevalent. One internal challenge they encountered at the University of Southampton was academic pressure. Pressures like research excellence framework, publishing, and gaining research grants. These pressures were roadblocks to ESD engagement and curriculum innovation (Cebrián & Humphris, 2015).

The above predicaments are aligned with the results of the study by Carbach & Fisher (2017). It was underscored that the root cause for teachers' and students' high workloads was the school's administrative and bureaucratic obligations. Consequently, it challenges the success in the implementation of projects requiring additional work, like the sustainability reporting process at schools.

**Table 6. Perceived Challenges on Green Curriculum**

Challenges	Campus A			Campus B			Campus C			Campus D			Overall		
	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank	%	Rank	
1. The curricula are overcrowded.	11	36.7	6	14	36.8	6	8	29.6	6.5	37	37.8	6	70	36.3	6
2. Limited trainings provided to all course coordinators and curriculum developers to orient curricula toward ESD/SDGs and incorporating green practices/SDGs into courses.	17	56.7	2	26	68.4	1	24	88.9	1	66	67.3	2	133	68.9	2
3. No clear strategic policy to include SDGs in the curricula.	12	40.0	5	17	44.7	4	10	37.0	5	40	40.8	4.5	79	40.9	5
4. Lack of budget for training, for curriculum reform related to SD practices.	15	50.0	3.5	21	55.3	3	12	44.4	4	40	40.8	4.5	88	45.6	4
5. Faculty lacks of interdisciplinary competence, collaborative ability, and integrative framework planning	15	50.0	3.5	16	42.1	5	15	55.6	2.5	51	52.0	3	97	50.3	3



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which resulted to fragmented and isolated ESD implementation.

6. Faculty are swamped by the number of hours dedicated to teaching and do not have time to work on other activities. 22 73.3 1 22 57.9 2 15 55.6 2.5 76 77.6 1 135 69.9 1

7. ESD, SDGs or sustainability activities are perceived as fillers and detractor from real knowledge that the student is required to learn based on their educational plan or syllabus. 7 23.3 7 10 26.3 7 8 29.6 6.5 30 30.6 7 55 28.5 7

\*integration and mainstreaming of ESD and SDG in all aspects of teaching and learning, and reinforce and strengthen the students' environmental awareness and involvement and graduates become highly capable of taking the global challenges of the 21<sup>st</sup> century.

### Green Research

In Table 7, the topmost perceived challenge in implementing the green research pillar was that the faculty members were so busy with tasks that they had little time to research sustainability or SDGs. Faculty in the Philippine State Colleges and Universities have three functions: instruction, research, and community extension.

Balancing these three roles needs more focus and prioritization. Hence, time management is of the essence. Gholami et al. (2020) underscored that among lecturers, time constraint is always an issue in participating in a sustainable development program. It was found that it took a lot of work to encourage lecturers and researchers to partake in environmental activities that may not be related to their field. Therefore, it creates a barrier to foreseeing and monitoring future environmental consequences.

In the context of the university, this may be deduced that among the functions of the faculty, instruction took up most of their time, or they may not be that fully aware that as part of the green research pillar, they need to partake in research which is anchored on SDGs to fulfill the vision of the institution to become a GREEN institution by 2030. Probably, some of them needed to have seen the links with their discipline and understand why ESD is relevant to the overall development of the institution (Fiselier et al., 2017).

**Table 7. Perceived Challenges on Green Research\***

Challenges	Campus A			Campus B			Campus C			Campus D			Overall		
	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank
1. Lack of priority given to sustainability or Sustainable Development Goals researches	14	46.7	3	18	47.4	3.5	6	22.2	6	50	51.0	3	88	45.6	3
2. The institution does not have knowledge hubs that diffuse their scientific sustainability findings by means of patents and publications, which are eventually adopted by industry.	12	40.0	5	18	47.4	3.5	10	37.0	3	40	40.8	6	80	41.5	4
3. The faculty are busy with task at hand that they have little time to research about sustainability or SDGs.	24	80.0	1	27	71.1	1	16	59.3	1	75	76.5	1	142	73.6	1
4. The university does not have thematic research related to ESD and the	12	40.0	5	13	34.2	5.5	8	29.6	4.5	44	44.9	4	77	39.9	5

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SDGs based on the key issues and trends.

5. The faculty and students are not encouraged and supported to do joint researches on sustainability. ESD, SDGs or sustainable development activities.

6. Less personnel are trained on Green environmental management implementation on research projects.

12	40.0	5	13	34.2	5.5	8	29.6	4.5	42	42.9	5	75	38.9	6	
20	66.7	2	26	68.4	2	14	51.9	2	67	68.4	2	12	7	65.8	2

\*integrate SDG in the school’s research agenda and to popularize the conduct of research with local application; seek to improve quality of life and ecological well-being; knowledge is applied in social policy and the advancement of a just, equitable and sustainable world.

## Green Culture

Data in Table 8 reveals that the highest perceived challenge in implementing green culture was – despite being aware of the challenges, faculty, staff, and students do not actively engage in sustainability issues. It could mean that the faculty, staff, and students may lack commitment, some may be resistant to change or lack initiative (Aleixo et al., 2016), and others may just use to work in their comfort zones (Gholami et al., 2020) or they lack interest (Leal Filho et al., 2018).

The above findings implied that the differences in the attitude and behaviors of the faculty, students, and staff could seriously affect the goal of greening the university. These differences can be attributed to the different orientations and interactions of the university members. If not resolved, this will undoubtedly lead to the failure of the greening program.

Aside from being indifferent to some faculty, staff, and students to the greening program, one of the factors could be the clarity of the communications to the institution members that led to their negligence of the sustainability strategies of the university (Gholami et al., 2020). Consequently, it entails an assertive kind of communication with all the members of the academic community to make the greening program work.

Lastly, it could also be attributed to the absence of a bonding relationship connecting environmental and sustainable knowledge between and among groups in the institution (Gholami et al., 2020). This means that there must be an enculturation program for all the members of the university that will help them understand the greening program and later own it as a member of the university. Finally, the university should investigate this to level off these differences and harmonize them to fulfill its vision of becoming a GREEN institution by 2030.

**Table 8. Perceived Challenges in Green Culture**

Challenges	Campus A			Campus B			Campus C			Campus D			Overall		
	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank
1. Less attention is dedicated to the principles of sustainability and whole institution approach to governance, orientation and culture of sustainability within the campus.	12	40.0	5	18	47.4	6	6	22.2	6	61	62.2	2	97	50.3	2
2. No existing mechanism for broad sustainability coordination for the entire institution (e.g., a campus-wide committee or	14	46.7	2	20	52.6	5	8	29.6	4.5	48	49.0	4	90	46.6	5

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an officer/office responsible for the entire campus)

3. Limited environmental awareness and communication on how to act sustainably among the university communities. 13 43.3 3.5 21 55.3 3.5 8 29.6 4.5 49 50.0 3 91 47.2 4

4. Time on environmental management becomes unnecessary and troublesome since it is not integrated into the daily schedule. 13 43.3 3.5 28 73.7 1 1 0 37.0 3 44 44.9 6 95 49.2 3

5. Despite being aware of the challenges, faculty, staff and students do not actively engage in sustainability issues. 26 86.7 1 24 63.2 2 1 6 59.3 1 79 80.6 1 14 5 75.1 1

6. Sustainability initiatives/Green programs are not integrated as one of the key performance indices in the performance evaluation and appraisal system of the university. 11 36.7 6 21 55.3 3.5 1 2 44.4 2 45 45.9 5 89 46.1 6

\* Institutionalize and mainstream sustainable development principles and policies in the school's operations, processes and practices. Our human interactions, practices and lifestyles are in harmony with ecological principles and are anchored on the values of respect for human dignity, the integrity of God's creation, simplicity, peace and social justice.

### Green Community

As shown in Table 9, the highest perceived challenge in implementing a green community was – limited programs and resources that drive sustainability action among students, faculty, staff, and alumni. It means that the university may have less institutional programs to motivate the staff, faculty, and students to engage in sustainability (Leal Filho et al., 2018). Because sometimes, the lack of time and financial resources is one factor that inhibits the academic staff from engaging in ESD (Cebrián & Humphris, 2015). Also, this implied that not many of the members of the university are getting involved with community partnerships related to sustainability (Peter et al., 2016).

To address the above challenge university may adopt the institutional change program by Green Academy initiated by Higher Education Academy (HEA) in the United Kingdom. In this program, the HEIs were helped to take holistic approaches in embedding ESD to campus, curriculum, community, and cultural aspects of the institution for sustainable development. This program gained progress. It means that all dimensions of university operations must be coordinated well so that obstacles such as discipline silos and insufficient time can be arrested to meet the university's maximum potential (UK National Commission for UNESCO, 2017) in becoming a GREEN school by 2030.

**Table 9. Perceived Challenges in Green Culture**

Challenges	Campus A			Campus B			Campus C			Campus D			Overall		
	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank
1. The institution does not have startups for technological development and commercializing own technical application to definitively pursue	15	50.0	4	21	55.3	2.5	14	51.9	2	60	61.2	2	110	57.0	2

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### SDGs

2. Lack of Integrating Sustainability Policies in relations with the community and the environment.	18	60.0	2.5	20	52.6	4	8	29.6	4	52	53.1	4	98	50.8	4
3. Limited programs and resources that drive sustainability action among students, faculty, staff, and alumni.	20	66.7	1	24	63.2	1	18	66.7	1	73	74.5	1	135	69.9	1
4. Lack of driving factors from the communities around the university to encourage the implementation of sustainable campus operations.	18	60.0	2.5	21	55.3	2.5	10	37.0	3	55	56.1	3	104	53.9	3
5. The implementation of green campus operations initiatives is not backed up by the governmental agencies or government/local policies.	9	30.0	5	14	36.8	5	6	22.2	5	39	39.8	5	68	35.2	5

\*Integrate the SDGs in the school's extension framework; guided by green research; contribute directly to biodiversity, conservation and environmental protection of Negros; ensure the development of resilient partner community; address poverty, environmental degradation, climate change and other challenges of our time.

### Green Technology

As reflected in Table 10, the highest perceived challenge in implementing green technology was a need for knowledge on how to harness different technologies to educate for sustainability. It implied that though the university has a blueprint for its greening program with specific indicators for green technology, it can be deduced that it needs to be understood and embraced by the members of the university. This blueprint should have been used to integrate environmental management practice into daily activities to expose the members of the university to a sustainable environment (Peter et al., 2016). In this manner, the members of the university, especially the faculty members, will be able to own the vital call in developing technology that will help promote sustainability. Consequently, it can help inspire the students to own this vision too, and, in one way or another, be able to partake in their role in the promotion of sustainability through technology.

The above predicaments of the university are also relevant to Malaysia's HEIs. They have seen that the potential obstacle in the application of sustainability was the cost of high-technology adoption, the inadequacy of environmental knowledge, awareness, and trust, the adoption rate in HEIs, and switching to green technology (Reza, 2016). Moreover, the decline in the population of students and monetary support also hinder SD integration in HEIs (Lazarov & Semenescu, 2022). It means that aside from owning one's vital role in promoting sustainability, the administration must factor in appropriate financial resources to ensure the program's continuity. Finally, the potential members of the university will be trained to gain skills and knowledge in developing technology that will help address the sustainability issues of the university.

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**Table 10. Perceived Challenges in Green Technology**

Challenges	Campus A			Campus B			Campus C			Campus D			Overall		
	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank	f	%	Rank
1. Lack of knowledge and understanding among faculty and administration in the green innovation and systematic change within the institution regarding sustainable development.	11	36.7	4	14	36.8	5.5	12	44.4	3	47	48.0	5	84	43.5	5
2. Limited space and scarce resources for green/sustainable initiatives.	18	60.0	1	15	39.5	3.5	12	44.4	3	54	55.1	3	99	51.3	3
3. Sustainability projects are not considered as a top priority for the management.	10	33.3	5.5	15	39.5	3.5	10	37.0	5.5	46	46.9	6	81	42.0	6
4. The principles of sustainable development are not currently woven into daily life and governmental policy in developing technology for the institution.	10	33.3	5.5	14	36.8	5.5	12	44.4	3	50	51.0	4	86	44.6	4
5. Lack of knowledge on how to harness different technologies to educate for sustainability.	17	56.7	2	19	50.0	2	16	59.3	1	64	65.3	1	116	60.1	1
6. There has not been any upgrading or renovation of the current buildings or structures to maximize the usage of the natural lighting and lower the cost and consumption of electricity.	9	30.0	7	13	34.2	7	4	14.8	7	42	42.9	7	68	35.2	7
7. No technology or equipment has been developed or acquired that might reduce the cost and usage of water.	15	50.0	3	24	63.2	1	10	37.0	5.5	55	56.1	2	104	53.9	2

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## B. Qualitative Results

This phase of the study aims to reinforce the results of the quantitative phase. It will look deeper into the context of the great extent of implementation of ESD in the university and the highest perceived challenges as rated by the faculty and the administrators.

In this phase, there were eight (8) participants, four (4) from the faculty and four (4) from the administrators—all equally representing each campus.

### Theme 1: Perspectives on the Implementation of ESD

One of the evident themes that emerged from the interviews was the observations and realizations of the participants about why the university only reached a great extent of implementation. They shared that each campus and the university as a whole only reached a great extent of implementation of ESD through its greening program because even though it has its strengths in the areas of research and community engagements, there are still some gaps in its operations that need to be addressed. Generally, their perspectives are expressed as *active research engagements, relevant community engagements, and limited awareness on the implementation or integration of ESD*.

**Active research engagements.** One of the mandates of State Colleges and Universities (SUCs) is research. As one of the SUCs, the university targeted to integrate SDGs into its research agenda through its greening program, particularly on green research. From the interview, it prevailed that the university earned a great extent of implementation of ESD because SDGs were integrated into the research agenda of the university.

*"Umm.... It's because... no. I ang sa green research why it is high no? well I guess, I agree, because umm... though it's very clear in the research agenda, no? ...That we were kinda... bombarding the people to do... to do green research so a lot of people embarking it, so.. amo ni siguro ngaa nag no. I ni siya."* (Umm.... It is because... no. I in the green research why it is high no? Well, I guess I agree, because umm... though it is very clear in the research agenda, no? ...That we were kinda... bombarding the people to do... to do green research, so a lot of people embarked on it, so.. maybe that is the reason why it ranked no. 1) (DQ, personal communication, September 22, 2022)

*"...as you have noticed diba, most of the research topics are related talaga sa green, diba?...ah, for example, this mga bottle... tanan-tanan, ah, but kaya lang, as what I have said, the same w/ this as a whole na parang ano pa gid sya, ah.... Not all kasi there are some topics w/c are not really included, or w/c are not really related to... This so-called ESD or greening (mentioned the university)"*...as you have noticed, most of the research topics are really related to green, right?... ah, for example, these bottles... everything, ah, however, as what I have said, the same w/ this as a whole that it is like, ah... because not all, there are some topics w/c are not really included or w/c are not really related to. This so-called ESD or greening (mentioned by the university). (DC, personal communication, September 26, 2022).

*"Yeah, because they thought, both the teachers and administrators, that when we do studies related to the environment, it is already green research. That is how I see it, not knowing that the green concept is more than that. It is just one, no? abi nila kung mag tuon ta sang biodiversity, psychology sang .. water quality, it's already green research well I-- we could not refute that no, so, ah... If-if the agenda of the research office is ah... Doing ah, research related to the environment and they would label it as that"* (Yeah, because they thought both the teachers and administrators, that when we do studies related to the environment, it is already green research, that is how I see it, not knowing that the green concept is more than that, it is just one, no? they thought that if we study biodiversity, psychology and.. water quality, it is already green research well I-- we could not refute that no, so, ah... If-if the agenda of the research office is ah... Doing ah, research related to the environment, and they would label it as that). (DT, personal communication, September 21, 2022).

Aside from the fact that SDGs are integrated with the research agenda, the participants underscored that through the research undertakings and utilization of research outputs of the university, they were able to build active linkages with other institutions like LGUs, communities and other National Government Agencies (NGAs). Consequently, in one way or another, the university helps improve the quality of life and well-being of the community it serves. Below are some of the significant statements of the participants regarding this claim:

*"Faculty-- faculty ang naga research so ... kay daw kanami nagid na bi sang relationship namon sa DSB, so ka damo sang naga uyon... nga faculty. Naga-intra, oo, naga-intra, active... oo naga active na sila, they actively joining kay ga participate gid na sila, hindi lang ya siling nga presence lang tu nila, pero may mga assignments na sila. Dasun, nagbata na siya ang program namon sa DSB, so nagbata na siya, sang una, pangabuhian lang na, pangabuhian na mo ang ngalan ya, pangabuhian. Umm... mothers lang na, 50 mothers, 50 housewives, nga... indi sila employed."* (The research was conducted by the faculty, and as we already have a good working connection with DSB, many faculty members took part. They join, yes, they join, actively... yes, they are actively participating, and they contribute; it is not just about being present; they also have responsibilities. Then our program at DSB proliferated, and it grew. Before, it was just a means of livelihood. We call it pangabuhian. Umm... It consists of 50 mothers and 50 housewives, all of whom are unemployed.) (DQ, personal communication, September 22, 2022).

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"...tungod kay, we- we are always connected with PEMO, sa province. In fact, ang mga research nila, ni... Ms. A, Ms. B, Ms. E, utilization sa government, ah....GIS nila... During the pandemic may ara sila nga....Geographical information system. With the use of internet mabal-an nila kung ang tawo nga... nang... may covid, diin nayun, diin nga place ang pinakadamo" (... because we- we are always connected with PEMO, in the province... In fact, the research of Ms. A, Ms. B, Ms. E, utilization of government, ah.... their GIS... During the pandemic, they have.... Geographical information system. With the use of the internet, they can determine the location of the person infected by covid, as well as where and which locations have the most cases of infection) (MS, personal communication, September 21, 2022).

### Relevant community engagements.

Aside from research, another mandated function of SUCs is community extension. In the greening program of the university, specifically the green community, the university targeted to ensure the development of a resilient partner community and address poverty and other challenges of our time, among others. From the interview with the participants, one revealing thought was the strong presence of the university in the respective community partners through its different community extension programs or projects.

*Oo, kay very strong ta sa communities because te inang when-- when we were a college, the focus is really on community mo, dasun te we cannot man make any extension, activities if it is not research-based, so nag angot da siya. Ang presence natun sa community, kami, ako, I... I am proud to say nga perti gid ya ang-- ang effect namon sa Bago?... Kag sa DSB, felt nagid ya nila... so amo na* (Yes, because we are very strong in communities because, of course, when we were a college, the focus was really on community, and we could not make any extension activities if it was not research-based, so it was anchored on that. Our presence in the community, we, me, I... I am proud to say that it is strong, our effect on Bago? ... And it is already felt in DSB, so that is it) (DQ, personal communication, September 22, 2022).

Another participant supported the prior observation by saying:

*"ok, that is because, maybe, we-- we go out to the community, and we bring to them ah, what is really needed by them, ano gid ya ang gus- ang kinanglan nila, so that is why nga... Ah.. We are welcome to the community, if ever nga we go out to them kay... Ah.. What we bring to them no? is, needs in- in the community, needs of the community"* (ok, that is because, maybe, we-- we go out to the community, and we bring to them what they truly require, what they truly need, which is why ah... we are welcomed into the community if ever we go out to them because... ah... What we bring to them no? is, needs in- in the community, needs of the community) (MSH, personal communication, September 28, 2022).

The above observations of MSH are further confirmed by DV. She shared:

Technology in the production of Tilapia, HVLD (High volume, low density) in the production of bangus. These technologies in tilapia and bangus products are used by the people in the community through our extension services, and our beneficiaries are using them for their livelihood (DV, personal communication, September 26, 2022).

On the other hand, one participant noted that community engagement is also dictated by a regulating body like the Department of Budget and Management through the set Program Expenditure Classification (PREXC). The participant shared:

*"galing kay may component pa gid da sa.. Sa PREXC nga gina ask nga... ah... trainings and outreaches that you have.... Community engagement that you have, te amo na eh...other than skills development or livelihood nila, mas spearhead ikaw ka mga tree planting, ka mga clean up, coastal, ka mga community development, things like that, which part of their extension"* (There is, however, a component in...That was asked in PREXC... ah... training and outreaches that you have... community engagement that you have, so that is it... other than skills development or their livelihood, you will spearhead tree planting, clean-up, coastal, community development, and things like that, which is part of their extension). (DT, personal communication, September 21, 2022).

### Limited awareness on the implementation or integration of ESD.

The participants shared that the university only achieved a great extent of ESD implementation because they experienced or observed that some members of the university need to be fully aware of the implementation of ESD through the greening program of the university. The participants shared:

*"majority of our... especially sa faculty and the staff, must not really be-- must not really be very very aware yet...But sa (mentioned the univ) ang greening, I don't think so people are coo-- are really conscious about it..."* (DQ, personal communication, September 22, 2022).

*"The one who answered the questionnaire is not-- not aware of... the full implementation?"* (MS, personal communication, September 21, 2022).

On the other hand, some participants noted gaps in the implementation. They expressed:

*"M-Maybe because of that's ah, not full force yung the implementation of this... if you can see, we've implemented before, yung... Ah, I do not know, plastic policy, right? Sa mga no plastic policy and yet, I have noticed that there were teachers, even students or even administrations who are bringing this plastic inside the campus"* (Maybe because the implementation of this is not fully

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enforced, as you can see, we have implemented before the... Ah, I do not know; plastic policy, right? In no plastic policies, and yet I have noticed that there were teachers, even students, or even administrations who... are bringing this plastic on campus). (DC, personal communication, September 26, 2022).

"There are some maybe, of the campus, that does not ah..Implemented well, the.. Program or the.. Ah.. w/ the sustainable development" (MSH, personal communication, September 28, 2022).

Aside from the above general observations of the participants, they also shared unique insights on the extent of implementation of ESD, specifically on green curriculum, considering that the university manifested its commitment to integrate ESD in its curriculum as stated in its Strategic Goals 2020-2024. They conferred that ESD is not fully integrated into its curriculum. They highlighted that: *"Ideally supposed to be, umm....amo na, conscious lang tani kita nga ma embed inang ESD sa syllabi, no? but it's selective no ... unlike sa GAD no, nga-- nga... It is-- it's institutionalized*

*.....we have the SDG, sustainable development goals, but that's-- that's, it's-- it's just one of the.... of ESD, so that is it"* (Ideally supposed to be umm... we should be conscious of embedding ESD into the syllabi, right? But, unlike GAD, it is selective, that-that... It's-institutionalized..... we have the SDG, sustainable development goals, but that is- that is, it's-just it is one of the.... of ESD, so that is it). (DT, personal communication, September 21, 2022).

"ah.. In our... course syllabi, daw... integrated SDG, when in fact, ang sa first me-- meeting natun, after introducing to them our vision, mission, mga goals, objectives natun we have, we teachers need to introduce to them the SDG... Especially the 17 SDGs" (ah... in our... course syllabi, SDG appears to be integrated, when in fact, during our first meeting, after introducing to them our vision, mission, our goals, and objectives, we have, we as teachers, we need to introduce to them the SDG...Specifically, the 17 SDGs). (MA, personal communication, September 27, 2022).

### Theme 2: Challenges in the Implementation of ESD

In implementing ESD, it must be recognized that there will be roadblocks along the way. The issues and problems that emerged during implementation must be identified to enforce appropriate corrections and corrective actions. In the context of the university, through the sharing of the participants, the prevailing challenges are gaps in the implementation of the waste management system, overloaded faculty, business-as-usual mindset, dilemma with support and participation, and limited knowledge on the implementation of ESD.

#### *Gap in the implementation of the waste management system*

The institution aims to convert the university to become a green institution. One of the entry points that led the university to its greening was the waste management system. A waste management system was already established that guided the members of the university. One prevalent waste management practice vividly shared by the participants that led to the great extent of ESD implementation was paper and energy conservation and recycling of PET bottles. The participants shared that paper conservation and energy conservation policies are in place. The participants shared:

*"but I would like to me-me-mention first of ah... Ah... Here, sa (..) man gyapon ah, sa ang paper conservation no and ah... energy efficiency, ok ah, a-amo na diri siya nga mataas na siya diri sa amon, kay, gina pa implement ko gid ni ya, ang... policy"* (but I would like to me-me-mention first of ah... Ah... Here, in (..) still, in paper conservation and ah... energy efficiency, ok ah, this is why it ranked higher in us because I really implement this... policy). (DDC, personal communication, September 29, 2022).

*"Te, diri naman sa dalom, paper conservation...That is the easiest thing to do bi, kay kadamo-damo gid man ta papel. Nan, so because damo na da siya, te conserve natun. Daw na-- daw na perfect-- almost perfect ta na nga practice.* (Here, paper conservation is discussed further below..... Because we have so many papers, this is the simplest thing to do. Because there are so many of them, we should conserve them. It appears that we have perfected or nearly perfected that practice). (DQ, personal communication, September 22, 2022).

"of course, subong, papel naka reduce kita kay waay sing papel" (of course, now, we have reduced the papers because there are no papers) (DT, personal communication, September 21, 2022).

Aside from conservation, one evident practice is the recycling of PET bottles. The four campuses of the university managed to recycle this trash, and they shared their experiences below:

*"Except na bi ang mga plastic nga... PET bottles kay te recyclable man gid sa ila, so amo na, amo na ila ginabaligya,"* (Except for the plastic... Because PET bottles are recyclable, that is what they are selling.). (DQ, personal communication, September 22, 2022, Lines 357-358).

*"then another is sa amon nga environmental science, ah, we asked students, ang mga empty bottles ba tu, mga plastic bottles, gina ano namon, daw eco-block ang mga basura, mga plastic, mga wrappers na ginapasulod namon, then we observed nga ga amat-amat na clean ang campus"* (Then there is another in our environmental science; ah, we asked students, the empty bottles, the plastic bottles, we made it, like an eco-block, with the wastes, plastics, and wrappers that we brought in, and we saw how the campus gradually became cleaner). (MA, personal communication, September 27, 2022, Lines 589-592).



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One campus highlighted that they manage this trash by working hand in hand with their partner nongovernmental organization (NGO), MSH and DV shared:

*“well-- well--, w/ the other ones..... Ah ok, a system that deals w/ waste management because we have that, we also have that partner, in the community, no, ah, we have the partner, nga... Ah, ining peace pond bala ma'am, Peacepond”* (well-- well--, w/ the other ones ..... Ah, ok, a system that deals w/ waste management because we have that, we also have that partner, in the community, no, ah, we have the partner that... Ah, this peace pond ma'am, Peacepond) (MSH, personal communication, September 28, 2022, Lines 491-493).

*“pero ang mga plastic bottles, um... We're, um.. Segregating it and ah.. Kung mag damo-damo na naman, amo na ginadala namon didtu sa Peacepond all of our plastic ano, plastic bottles na gin collect ... ah, mahimo, sila na gahimo sang mga daw yahong, tiles, mga ah... ano pagid ning gin.. Wallet out of the plastic bottles nga ginapanghatag ta na tu sila, na, sila gina ubra na nila, gina lain ang-- ang taklob”*(But the plastic bottles, um... we are, um... segregating them, and if it gets too much, we bring all the plastic bottles that we collected to the peace pond... ah, then they make bowls, tiles, and wallets out of the plastic bottles we give them; they make... they change covers). (DV, personal communication, September 26, 2022, Lines 191-193; 170-172).

Meanwhile, concerning waste segregation, the participants noted that it is not observed properly by the members of the university. The participants shared:

*“kasi may ara kita sang waste management, yung... if you can see sa mga basurahan diba? May ara dira nga nakabutang oh, siguro yung observation lang , once nga bio-degradable siya dira ibutang, non-bio-degradable dira sya, amo na siya but, for my observation ha, do you think ang mga janitor.. Gina separate gid ni nila after the disposal? ...pero during na bala sang pag pangkwa na sang basura, collection, gina pang impon man gyapon tanan... may nakita ko”* (Because we have waste management, you can see what's in the trash cans, right? It is written there that, based on my observations, whether it is biodegradable or not, you should dispose of your waste according to the label. However, based on my observation, do you think that the janitors... separate wastes after disposal?... they continued to mix it up when collecting wastes—I saw it). (DC, personal communication, September 26, 2022).

*“Ang sa waste management daw... daw ka budlay kay te partly-- partly, amo na guro nga great extent lang man kay sa- sa, waste management bi natun, like for example again in Campus C...makita mo na ang basurahan nga ga awas-awas because... there's not enough for everyone. So, pero kung may consciousness ka-- kung may consciousness ka, parehos sakon, kung may consciousness ka, kita mo na gid na puno ang basurahan i-daskan mo pa gid”* (In waste management, it seems... seems difficult because partly--partly, maybe it is great extent only because of our waste management, like for example again in Campus C, you will see that the garbage cans are overflowing because... there is not enough for everyone. However, if you have consciousness—if you have consciousness like I do if you have consciousness—you still put your trash in the trash can despite seeing that it is full). (DQ, personal communication, September 22, 2022).

### Overloaded faculty

Instruction and research are two of the mandated functions of teachers in SUCs. In pursuit of ESD, the university aimed to integrate ESD into its curriculum while conducting research in pursuit of SDGs. In the interview with the participants, they revealed the issues and problems they encountered in fulfilling these two functions that adhere to ESD. The participants shared that:

*“okay, so I mentioned a while ago in my case, ah.... I am having 2 researches but I could not make it because ... I don't have enough time to work in this, because of the teaching load I have”* (MA, personal communication, September 27, 2022).

*“yeah, because full load yun teachers, no time for other activities... overloaded na ta eh, in terms of the subjects that we have, overloaded na ta, in terms also of activities... overloaded ang subjects sa teaching, what else? other tasks given to them by the administration .. w/c are not related talaga sa greening (mentioned the university) diba?”* (yeah, because the teachers are full of loads, no time for other activities, we are already overloaded, in terms of the subjects that we have, we are overloaded, in terms also of activities... the subjects in teaching are already overloaded, what else? other tasks given to them by the administration .. w/c are not related to greening (mentioned the university), right?) (DC, personal communication).

*“Na, oo, so I also mention that your hands are full, now that I'm full-time faculty, ko "Ah, okay, kabalo nako where the faculty members are coming from, kay perti kakapoy... sa classroom”.* (I also mention that your hands are full, now that I'm full-time faculty, I said "Ah, okay, I know now where the faculty members are coming from, because it is really exhausting... in the classroom) (DQ, personal communication, September 22, 2022).

*“Ah.... Lots of subjects, lots of section nga gina offer for one teacher, so ang required lang for one preparation is 21, sa.. for... ah.. 21 for regulars faculty”* (Ah.... Lots of subject, lots of section that is being offered for one teacher, so the requirement for one (1) preparation is 21, in.. for... ah.. 21 for regular faculty”). (MS, personal communication, September 21, 2022).

### Business-as-usual-mindset

One challenge that must be conquered in adhering to change is going beyond one's comfort zone. In pursuit of ESD, it entailed tremendous changes in the operations of the university. Hence, the introduced changes must be owned by everyone, appropriately

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monitored, and evaluated if these changes have been implemented and embraced by the institution's members. However, from the sharing of the participants, they have noticed some gaps in the implementation of ESD through the greening program of the university. The participants conveyed:

*"kasi indi naman sya ano eh, for them, indi naman siya talaga requirement for them eh*

*parang wala bala gin re gin-enforce sa ila nga dapat you are going to do this or do that, wala lang... either I will participate or not, wala man dayun ano sa akon, amo na bala, sa akon, sa mindset nila, amo lang na siya w/c means ang awareness nila siguro is very.. Medyo .. Limited lang gid"* (because it's not, for them, it's not really a requirement for them, like it's not enforced to them, they aren't obliged to do this or that, so for them, whether I participate or not, It doesn't matter, which indicates that their awareness is not very... it's quite a bit..limited) (DC, personal communication, September 26, 2022).

*"okay, kung wala man gina require sila te, ngaa ma- ubrahon gid na nila abi nga there-*

*there is-- there is no necessity on it then, they-- they-- there is no need for them to do that because there are so many things that are expected of them to do kay te, ina ya, kay bal-an mo, ang ga gwa, nga kung sa... greening (mentioned the university) ka, amo na, ikaw na da ya in-charge, wala na kami na da ya labot"* (okay, so if they are not being required to do so then, why will they do it? If there is no need for it, then there is no need for them to do it because there are so many things that are expected of them to do because, you know, what comes out is that, if you are in greening (mentioned the university), you will be in charge of that, and we do not care about that anymore). (DV, personal communication, September 26, 2022).

*"ah... Other than that, mga policies natun ok, mga.. Policies natun now, a-although these*

*policies, gina... make people aware that policies, aware ni sila, oh galing, may mga ara nga iban nga tawo nga... Just a few no, just a few, nga.. i-indi bala ya mag ah.. Mag embrace no sang... Sini nga, nga policies...indi sila mag welcome, that is, ngaa hindi sila gina welcome ang gusto sang management ma-matabo, ang no. I sina, the way I see it, of their comfort zones"* (ah.. Other than that, our policies, ok, our... policies today, although these policies help to increase awareness, there are some people who are... just a few, that do not want to embrace these policies. They will not welcome, or more specifically, they will not welcome the management's wishes because, in my opinion, they are unwilling to leave their comfort zones.) (DDC, personal communication, September 29, 2022).

*"culture of the school per se, is ah... detached from the culture of the self, di bala... LAUGH*

*we-- we might be very conscious of the ISO here and all of this, pag-abot sa balay gina ISO ka haw*

*..waay hay!"* (culture of the school per se is ah... detached from the culture of the self, right... LAUGH we– we might be very conscious of the ISO here and all of this. However, when we get home, there is no ISO, so). (DT, personal communication, September 21, 2022).

*"Kay te, there are bala a lot of faculty who are pathetic. They would just see... the greening (mentioned the univ), it's in the...vision statement.. but as far as their involvement is concerned, or whether they see it really happening in the implementation.. I don't think so that umm... ang-- ang akon lang na ya na feel nga daw ka pathetic sa ila. So, te ano.. ano kung may ara na da? Daw... daw something like that, daw wala gid man sila labot, wala kami na da labot, ga inano na da sila..."* ("Because, there are a lot of faculty who are pathetic. They would just see... the greening (mentioned the university) it's in the... vision statement, but as far as their involvement is concerned, or whether they see it really happening in the implementation... I don't think that umm... for me, I feel like they are pathetic. So what... if there is a thing like that? something like that, they do not care, we do not care, whatever they are doing there"). (DQ, personal communication, September 22, 2022).

### Dilemma with support and participation

For ESD to thrive, it needs different kinds of support from all members of the institution. Their concerted commitment to fulfilling the ESD is vital to reaching the 2030 vision of becoming a green institution. From the interaction with the participants, their collective experiences revealed a gap in the extended support of the administration, especially in financial aspects.

*"... the resources that we have, ah.... And the packaging of ah... what we are supposed to have in our programs with regards to... the involvement of...parehos na bi, ma tree planting sila, te way man sing, indi man pag-pag gamiton ang bus kay ka gasto blah blah blah, no resources na ina or- or they would have umm... Outreach nga... You know, it has to be supposed to be significantly ... you know, learn and transform them whatever, as part of their learning experience indi matabo kay ....."*

*Isa katutak nga requirement ang pangayuon mo sa CHED asta ma ka gwa nag kabataan"* (... the resources that we have, ah.... And the packaging of ah.. what we are supposed to have in our programs with regards to... the involvement of... like, during their tree planting, there is no, the bus is not permitted to be used because of expenses blah blah blah, no resources, or- or they would have umm... Outreach that... You know, it has to be supposed to be significant... You know, learn and transform them as part of their learning experience; however, this does not happen because... you must request a bunch of specific requirements from CHED before the children are permitted to go out) (DT, personal communication, September 21, 2022).

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*“ah, especially if... ah.. sometimes, our.. budget, there-- there is budgetary constraints, Putting there, they are being... questioned ngaa may amo ni, para sa amo ni, ngaa may amo ni no? ah... especially the food ah.. Te ang.. kung ikaw, involved ka ya sa community, nahuya ka magpatawag sa taho nga bisan pamahaw lang indi mo siya pag tagaan kay... Community extension work sang ano..*

*Sang iskwelahan te, amo na nga.. daw.. Sometimes, amo na siya nga makahambal ka siguro nga um.. Um.. Limited programs and resources that drives s- ah, among students” (Ah, especially if.. ah.. our.. budget has budgetary constraints, which are questioned: "Why do we have this?" "What is this for?" Ah, especially the food. So, if you are involved in the community, you will be ashamed that you called for participants but you cannot give them even a simple snack... Because... this is a community extension work of the school so, sometimes, maybe that's the reason why you will say um.. um.. limited programs and resources that drives s- ah, among students). (DV, personal communication, September 26, 2022).*

*“so, for example bi, daw wala nagid ta fund, you can tap some of them, kung na close ta da , because they are willing to ah.. extend their help like for example, mga monetary nga ano ah... They will ah.. Let us say pag aware sila that we are conducting activities involving the.. Sa environment then, they could give us, for example, 1,000 pesos to be spent for the materials we need in planning and implementing such activities, daw amo na te, daw malipay kaman... And they will be motivated on that, so sometimes we also ask some of our faculty members who are much willing to help” (So, for example, if we no longer have funds, you can tap some of them if we are close with them because they are willing to, ah... extend their help, such as monetary help. Let us say if they are aware that we are conducting activities involving the... Sa environment then, they could give us, for example, 1,000 pesos to be spent on the materials that we need in the planning and implementation of such activities, like that so, you will be glad about it as well... And they will be motivated on that, so sometimes we also ask some of our faculty members for who are much willing to help). (MA, personal communication, September 27, 2022).*

*“Resources relates more on budget, budget kay kung space lang, mas dako ang space sang ano eh, sang Campus A eh, compared to other campuses, so, it's always the resources in terms of budget kay maybe because we only have few students, few faculties, so ang budget guro namon is also limited to... a certain amount man, kay dutay lang amon estudyante diba, ang pag allocate sina, so (duting?) lang man” (Resources relate more to budget because if it is just about space, the space of Campus A is larger compared to other campuses, so it is always resources in terms of budget because maybe we only have a few students and a few faculties, so our budget maybe is also limited to a certain amount because we only have a few students here, so the allocation is also few). (MS, personal communication, September 21, 2022).*

*“the bottomline is, ang tanan mangin possible maybe because, ah, maybe w/ the support of the administration, no w/ the faculty, any program that we have, kinanglan support of everybody, oo” (the bottom line is, everything will be possible maybe because, ah, maybe w/ the support of the administration, no w/ the faculty, any program that we have, we need the support of everybody, yes). (MSH, personal communication, September 28, 2022).*

Aside from financial support, another revealing insight shared was the consistent observations of the participants that the staff were not actively involved in the community extension programs of the university. When asked about the reasons behind this less involvement, they shared the following thoughts: *“umm... maybe daw wala gid sila gina require the administration did not require them to... Particpate in the extention, nga wala gid ya bala unlike sa faculty nga dapat ma amo ta ni pero sila wala as long as they are doing their job there kasi indi naman sila kwan eh required eh, may IPCR ba ang staff? Wala tapos wala man na nanbelong sa ila rating diba? Kasi purely office works lang gid sila, unlike saton nga faculty that we ano ya sa extension, sa research, sa curriculum” (umm... Maybe because the administration does not require them to participate in the extension, as opposed to the faculty, we need to do this while they do not, as long as they do their job there. Because they are not required, do the staff have IPCR? None, then it does not belong to their rating, right? They are purely administrative, whereas we, the faculty, are involved in extension, research, and curriculum). (DC, personal communication, September 26, 2022).*

*“ah.. Kay ang staff daw wala ni nila ya maintindihan gid ya maayo, kay daw wala ni sila ya naka training gid ya ya ang mga staff wala ni sila ya ga attend sa mga training, sa mga community involvement ...We-we give too much-- sa faculty mo, ah, too much focus sa faculty, kay tungod nga ah.. i-it's kwan ya, it is a mandate to the faculty members ya ya, a-as part of their mandate no, ara gid na ya sa- sa IPCR nila ya” (Because the staff does not understand this very well, because they were not properly trained, did not attend training, and did not participate in community activities... We place too much emphasis on faculty because it is a mandate for faculty members, and it is included in their IPCR as well) (DDC, personal communication, September 29, 2022).*

*“Yeah, yeah. Te kay wala man gid gina involve ang staff, ambot ah. No. 1 is ahh... No. 1, siguro ang isa sina ka rason is, umm... daw wala gid man sila gina actively invite... kay ang iya nga... programa sang faculty, daw si staff, wala man na da ga intra, kay si staff may ara man na tu sila umm... activities sang (mentioned organization) so didto nu sila ya, so meaning sa--sa iya sang Campus C, hindi sila makita kay didto na tu sila ya sa (mentioned organization)” (Yeah, yeah, because the staff are not really involved, I don't know. No. 1, maybe one of the reasons is, um, they were not actively invited... because the staff does not participate in the faculty program, because the staff has their activities in (mentioned organization), so in the case of Campus C, the staff are not visible because they are in (mentioned organization). (DQ, personal communication, September 22, 2022).*

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From the above sharing, the participants elaborated that the staff was not involved in community extension programs because it was not part of their core function. Also, they have a separate organization in which they are more likely to participate. Unlike the faculty, it is part of their three-fold mandated function and Individual Performance Commitment and Review (IPCR). It appears that the staff and faculty have a silo mentality that may challenge collaboration in merging their efforts towards ESD in pursuit of SDGs in the community extension aspect or green community program.

### Limited knowledge on the implementation of ESD

From the interview, the participants shared that one of the roadblocks to the success of the implementation of ESD was the limited awareness of the members of the institution of ESD in pursuit of SDGs. This limited knowledge led to some indifferent behaviors. One participant shared:

"But there are some faculty, maybe that is why they are pathetic because of their umm... level of knowledge. So in the first place kung wala ka kamaan, kay daw wala ka man labot, regardless whether the technology is there or not, hindi gid siya ya mag-- hindi gid siya ya mag... butyog eh, ka amo sina bala. ...That, I also don't know kung ano nga mga technology ang ginagamit para sa area sang sustainability, to educate for sustainability." (But there are some faculty, maybe that is why they are pathetic because of their umm... level of knowledge. But there are some faculty, and maybe that is why they are pathetic because of their umm... level of knowledge. So, in the first place, if you do not know anything because you do not care, regardless of whether the technology exists or not, it will not be successful. That being said, I am also unaware of the technologies being used in the field of sustainability to educate about sustainability) (DQ, personal communication, September 22, 2022).

Three participants further added that:

"yes, ah, lack of knowledge talaga, kay.. Only a few there... Ang... Naga participate gani sa ginatawag nga green technology kasi.. ah.. Maybe 20% no, or 10% lamang kasi, when you say gr-- ah, technology..." (yes, ah, lack of knowledge really, because only a few of them participates in what we call green technology because.. ah.. maybe 20% or 10% only, when you say gr-- ah, technology). (DC, personal communication, September 26, 2022).

"pero kung waay gid sing.. Knowledge no? wala- wala gid bala sing, what is sustainability, what is a sustainable future, what is ang ideal education that would adjust to that, so I think ah... bottom line nalang ni no, if- if we really ah... Teach for sustainability, and we have to be very conscious, that will start from us, nga teachers gid no, or those that will be indirectly involved in our education, kay kung waay ina no... What will you expect from them? From- busy lang ta ya sa pag tudlo sang aton nga discipline, no but we never thought of ....how do we see ourselves 5- 10 yrs. From now, amo bala na, waay-waay, futures thinking" (but if there is no.. knowledge right? No understanding of what sustainability is, what a sustainable future is, and what is the ideal education that would adapt to that, so I think, ah... the bottom line is that if we truly teach for sustainability. We must be very conscious that it will begin with us, the teachers, right, or those who will be indirectly involved in our education, because if we do not have that... What will you expect from them? We are just busy teaching our discipline, but we never consider... how we see ourselves 5- 10 yrs from now like that no- no future thinking). (DT, personal communication, 21, 2022).

"but ako, sa-- sa ano sa ah.. Sa imo ni nga ano, sa imo nga study, maybe it is an eye opener for the administration or us to do something on the technology because that is really what we lack no, we do not really have that kind of technology nga makahmbal ka nga we could be-- we could say that we are..maybe, we have some-- we have some, but, I mean ina balang mahambal ka nga... as I have said earlier, "wow" nga technology" (but me, in- in ah... Maybe your study will be an eye opener for the administration or us to do something about technology because that is really what we lack; we do not really have that kind of technology that we can say could be; we could say that we are...maybe, we have some; we have some, like...as I have said before, "wow" technology). (DV, personal communication, September 26, 2022).

### Theme 3: Opportunities for Improvement in the Implementation of ESD

The literature revealed that the whole-institution approach is one of the viable approaches that will make ESD implementation work. In this approach, the five pillars of the greening program of the institution must be integrated into all its operations. This holistic approach entails several elements for it to work effectively. The foregoing reasons why the institution only reached a great extent of implementation of ESD, and the identified challenges had set the context of ESD in the university. Accordingly, it can work on the following opportunities for improvement as shared by the participants.

#### The renewed commitment of the top management

The key to the whole institution's effective approach is the leadership and commitment of the top management. The leaders of the institution will be the ones to steer the wheel of the greening program so that the actions and mindset of all the members of the institution will be synchronized towards the fulfillment of its vision to become a green institution by 2030. Participants opined that:

"We will really be religiously implementing this green culture, starting from the administration talaga as a model to the... Faculty also as a model and of course, it will go down

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...Meaning they will be the ones... to lead on this, on the implementation, for example, yung administration will be the one talaga to do... Kumbaga to lead... in.. About this plastic policy or what it is, plastic policy meaning sila gid dapat yung model, the same also w/ the teachers" (We will really be religiously implementing this green culture, starting from the administration as a model, to the... Faculty also as a model and of course, it will go down ...Meaning they will be the one... to lead on this, on the implementation for example, the administration will really be the one to do.. to lead... in... About this plastic policy or what it is, it means they will really be the model, the same also w/ the teachers) (DC, personal communication, September 26, 2022).

"so meaning to say, it-it is not just ah.. (inaudible) but--- management has to look into ah.. The real needs no, of ah, of-of faculty members whereby, they- their ah-- their ah... their skills no and knowledge can be improved so that they can contribute no, to the sustainability development of ah.. Our school the- the way I see it ah.. Well ah... ah, maybe, ah.. The management has not really look into no, ah.. The re- the real need of teachers" (DDC, personal communication, September 29, 2022).

...reorganize ya gid guro madame eh, dapat eh inform ya gid ya si Executive director because si executive director daw ang naga choose Mag assign naman madame eh, sang task force from (campus A...Dibacommittment, dedication, commitment gid ya sang tawo madame, will be assigned on each pillar (reorganize madamme, the executive director should be informed because s/he the one assigned to choose. A task force will be assigned madamme in (campus A). Commitment and dedication, I think commitment is a must in assigning to each pillar) (MA, personal communication, September 27, 2022).

Huo, siguro, if our top management no, like for example, the-the president will still continue to ... To inang give priorities on this, sang mga... green culture, para ma sustain, kita di sa dalom ya, ma follow man lang ang tanan diba ah... Wala man guro problema for us to adapt whatever programs nga gina propose (Yes, I think, if our top management, like, for example, the president will continue to give priorities on this... on green culture so that it will be sustained, we here will just follow. There will be no problem adapting whatever the proposed programs are.) (MS, personal communication, September 21, 2022).

### Regular management review

To address several gaps, issues, and challenges in the implementation of ESD, the institution needs to revisit its existing greening program policies in the management review. By doing so, it can create a mitigation plan that will help realign its action plan toward fulfilling its vision. Participants suggested revisiting the loading and giving designation to the faculty to address the challenge of overloaded faculty. They shared:

"The administration should not only focus on the same faculty ang gina pa ubra, tap also others para at least there is division sang mga ulubrahon bala ... kay kung si sin-o lang ang ila masaligan nga ma ubra sang sina, amo lang gid na ... ang iban nga faculty is...maybe aside from the trust of the administration for example, ang iban nga faculty umm... Daw... Naga say no, ngaa naga say no sila may ara iban nga many alibis of that...ok, maybe e meet ang teachers, encourage them, amo na, that ah.. That supposedly is not only for the chosen few but for everybody." (The administration should not only focus on assigning the same faculty but also tap others, so there is division in the workloads because they only let the person they trust do the job. Other faculty is... maybe aside from the trust of the administration, for example, other faculty umm... they are saying no, why are they saying no, some of them have alibis, maybe meet the teachers, encourage them, things like that...That is supposedly not only for the chosen few but for everybody). (DC, personal communication, September 26, 2022).

"they have to rethink siguro na, kung paano ang number of units nga ihatag sa faculty... sa faculty budlay gid tuod kung hindi mo na pag gaan sila chansa... opportunity... may opportunity pero kung sa ila schedule bala nga mag luwag nga tagaan mo sila time nga maka research pa... amo na, paano sila maka research kung puno-puno tuod ila nga... hands with teaching nga mga concerns" (maybe they have to rethink, if how the number of units that will be given to a faculty... it is really difficult for faculty if you will not give them a chance... opportunity... there is an opportunity, but if you will loosen their schedule and give them time to research... like that, because how can they research if their hands are full of teaching concerns?). (DQ, personal communication, September 22, 2022).

Meanwhile, one participant suggested going for digitalization to lessen the preparation of the teachers. At the same time, the other one expressed synchronized schedule, especially between online meetings and classes.

"siguro gid man no, kung naka device kita sang-- sang ways nga indi na bala mabudlay gid nga...digitalization is one no? nga... I don't know, pero ... ah... nakita ko isa ka example nga ginhimo sang (mentioned external college) nga...ako, halimbawa matudlo ako ka.. Ka English one, no, example lang ha, ara na na tanan nga instruction materials and everything, I just have to deliver it so can you imagine the-- the time you will be saving, in preparation and everything? Higher Ed ina ha, standardize na sa ila nga system, ngaa indi kita ka himo sina? And... Can you imagine the amount of time that you will be... you know.... Saving, that you could do into other activities" (maybe if we have devised ways that we will not have difficulty in digitalization, right? that... I do not know, but... ah... what I saw, one example made by (mentioned external college), that I, for example, will teach... English one, the instruction materials, and everything are already provided, I just have to deliver it so can you imagine the-- the time you will be saving, in preparation and everything? It is Higher Ed. It is standardized in their system, so why can't we create that? and... Can you imagine the amount of time that you will be... you know....Saving, that you could do into other activities) (DT, personal communication, September 21, 2022).

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On the other hand, for green research, one participant asserted to revisit the research policy:

*"te, may, amo lang na gani sila, ma conduct kami research, dasun, imbis nga kami ang ma benepisyo, kami pa pabayaron, naga...Disallow- gina disallow pa, like that, isa man ako da gani, pero I-I am, ako ya wala ko ya na discourage kay te, that is only a part of the bureaucratic processes no... and number 2, guaranteeing they have time, but they are not ah...ano ni ah...committed motivated to go into research... again, going back to our policy, w/c is not enticing"* (They have that, we will conduct research, then instead of benefiting, we will be the ones to spend, and then... disallow- it is being disallowed, like that, and I am one of those, but I am not discouraged because that is just a part of the bureaucratic processes, no. And number 2, guaranteeing they have time, but they are not ah... committed and motivated to go into research again, going back to our policy, w/c is not enticing). (DDC, personal communication, September 29, 2022).

### Reorientation of the different members of the university about the greening program

One of the answers to make the stakeholders of the institution work for the fulfillment of the greening program is to empower them. Empowering them can take several forms, the first of which is making them knowledgeable about the program. Hence reorienting them is a must. Next, involving them in planning and engaging them in several projects that promote sustainability. Finally, enculturating them in order to create a harmonized and coordinated mindset.

*"One of w/c of course I... One of w/c is e-empowering these ah.. faculty members no but as ah, the way I understand, they have been ah.. Ah.. empowered ah, through.. Many of training no like research, community extension ah... curriculum no, and of course ah, but maybe for technology, for some for technology, we need a lot of improvement on that"* (DDC, personal communication, September 29, 2022).

*"Yeah, I agree, so ang suggestion sina di guro, let's say sa-- sa-- sa staff, kung miskan may (mentioned the organization) na tu sila nga activity, te imbitaron lang gid sila eh, siguro, whoever the next one, ma conscious lang gid about this, invite, invite the faculty, invite the... staff--"*(Yeah, I agree, so the suggestion here, for in-in-in staff, is that even if they already have a (mentioned the organization) activity, we should still invite them, maybe, whoever the next one is, so we can be aware of this, invite the faculty, invite the staff--) (DQ, personal communication, September 22, 2022).

*"but it's their call because they are the one who proposed that or... maybe we could do something on the evaluator during the in-house review, nag eh incorporate niyo abi ina, no? but you do not, that much"* (but it is their call because they are the one who proposed that or... maybe we could do something on the evaluator during the in-house review, that why don't you incorporate that? But you do not, that much) (DT, personal communication, September 21, 2022).

*"K, for me, there are a lot of opportunities. Kay we tried to encourage some of .. Our young faculty ...because ah, they joined, at that time I joined (mentioned name of university) some of those mga ano pa lang, few years...ah, I believe that is one-way nu to really motivating us and Encouraging us to conduct research, especially on the field of ano eh.... Ah.. Diri hu, ..... Sa aton nga greening (mentioned the university) program"* (K, for me, there are a lot of opportunities... Because we tried to encourage some of our young faculty...because ah, they joined, at the time I joined (mentioned name of university), some of those are only a few years, ah, I believe that is one way of truly motivating and encouraging us to conduct research, particularly in the field of ah, here, in our greening (mentioned university) program) (MA, personal communication, September 27, 2022).

### Capability building for members of the university and its partners

The stakeholders of the institution need to be empowered so that they can respond well to the demands and requirements for the success of the implementation of the greening program. They need to be developed and strengthened in any opportunity to partake in their role. Participants echoed the sentiments below on creating appropriate programs or training to equip the stakeholders:

*"inang kwan gid bala ka.. Thorough gid ya nga training nga para ma equip gid sila ya sa skill on implementing i-i-it is not just ah... You know, you have the knowledge, you are aware, like that, te, what is the use of that if you are aware and you are not ah-ah equip w/ implementing this eh, SDGs (you should really... thorough training so they will be equipped with skill on how to implement-i-it's not just ah... You know, you have the knowledge, you are aware, like that, but, what is the use of being aware if you are not ah-ah equip w/ implementing this eh, SDGs)* (DDC, personal communication, September 29, 2022).

*"Daw wala sila-- daw wala sila-- daw wala na nila na imbibe be, ano na ang meaning ya gid, kay wala sila bala nababad. Daw hindi bala babad, amo na ang gina tan-aw ko. Amo ni nga ga request-- ga request ko gani kay Mr. Director nga, please conduct a separate umm... nang...workshop bala or orientation umm... to the faculty, siling ko "te sa Campus C, i-kadtui kami to para mag conscious ang mga-- ang mga faculty."* (It is as if they do not get it, the meaning of it because they were not immersed in it. The way I see it, it is like it was not soaked. That is why I am requesting Mr. Director to please conduct a separate umm... workshop or orientation for the faculty. I said, " please visit us in Campus C so the faculty will be conscious of it) (DQ, personal communication, September 22, 2022).

*"wala, wala.. I guess there is a need for them to... be informed about this or in-in... Some... Meetings...they ano, ma anhan mo gid, the- ma- ma-- ma batian nila ang SDG...diri kita nayun nga ano, kay based sa SDG... amo ning aton nga direction, daw amo na, daw dira lang guro ang ma anhan nila pero kung ang mga teachers gid ya ya, wala na sila kabalo, wala pa na sila, wala*

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*sila, siguro kinanglan guro eh ano sila eh, in one of our-- our.. Meetings or in one of our.. Um.. Mag- mag-- mag general assembly, ipa.. bal-on gid siguro"* (none, none... I guess there is a need for them to... be informed about this or in-in... Some... Meetings... they hear about SDG... this is where we are now, based on SDG... this is our direction, like that, that is the extent of their knowledge, but if we only talk about the teachers, they are not knowledgeable about that, maybe they need to be informed about that.. in our-- our meeting, or during our general assembly) (DV, personal communication, September 26, 2022)

*"w/c means yung monitoring natun, it is our responsibility as faculty or ... yung community or yung (mentioned the university) community ta naga, especially sa atun nga community, so, ano, let them aware ...,amo na siya, or umm... Ano ni sya, ah, make a follow up to them regarding this, example lang ni siya eh, pero wala... ok, to include also these, yung mga orientations sa greening culture at the same time monitoring .. Sa aton nga community"* (This means that our monitoring is our responsibility as faculty or... community or our (mentioned the university) community, especially in our community, so they will be aware.. or um... ah, make a follow-up to them regarding this; this is only an example, but none, ok, to include all of these, the orientation in the greening culture at the same time monitoring... in our community) (DC, personal communication, September 26, 2022).

### C. Mixed Method Data

#### Discussion and Integration of Data

The interplay of the great extent of implementation of ESD and the themes explicated from the interview transcripts presented three significant thoughts on the extent of implementation of ESD through the greening program of the university in pursuit of SDGs.

**First**, the implementation of ESD only reached a great extent because even though there were observable projects or activities about the greening program, there is still a need for the university to become more proactive. Some indicators of the five pillars of the greening program were implemented and evident in the university. There were initiatives that ensured that the research agenda was aligned with the national agenda, the institution had a strong partnership with communities, an established waste management policy, and integration of ESD/SDGs in the syllabi or inclusion in-class orientation. However, these initiatives were only partially institutionalized. It means that it is fragmented. Some initiatives were integrated into the processes or campus operations, while some units/campuses still need to adhere to them because it turned out to be voluntary, either they follow or do business as usual routine. Hence, there is a challenge in the cohesiveness of actions of all university members toward fulfilling the goals of the greening program.

**Second**, since greening initiatives were not fully institutionalized, several challenges impeded the success of the greening program. One is complete awareness of the university stakeholders of the greening program of the institution. It was relaunched in 2019, but up to the present, it is only mainstreamed in some of the offices of the four campuses. The university only reached a great extent of implementation because its stakeholders, primarily the faculty, have limited awareness of the indicators of the pillar of the greening program and how it will be carried out. Therefore, greening projects or activities appeared to be an additional burden because they were already overloaded with their teaching loads. Consequently, they need help fulfilling their other core functions because they prioritize their teaching responsibilities. With this current state of green curriculum, the institution needs to reconsider its pedagogies and forms of learning that will enable the learners and staff to deal with the unprecedented change, increasing complexity, contested claims, and unavoidable complexity adhering to emerging transformative and transgressive learning research and praxis in sustainability science (Lotz-Sisitka et al, 2015). It can look into the holistic approach of the content and pluralistic approach in teaching strategies (Boeve-de Pauw et al., 2015).

Meanwhile, another prevalent gap in the implementation of the five (5) pillars was seen in green technology. There was no straightforward evident project or activity that would prove that there was a development of a specific technology that would neutralize the impact of the carbon footprints of the institution nor mitigate the environmental impacts of their activities.

**Third**, specific waste management policies were known to the university members, like waste segregation, no plastic policy, and energy and paper conservation. However, despite their awareness, the faculty, staff, students, and even concessionaires at the canteen did not follow these policies.

The above context of the school appeared to have less focused on the transformative perspective. ESD was anchored on individuals or groups that were responsible for implementing it. This top-down decision-making toward those individuals usually only involves part of the organization. This strategy is more likely to lead to the unsuccessful implementation of ESD (Mogren & Gericke, 2019). It can work on tight framing in transforming the university. In this framing, the university needs to embody the vision, values, and values-informed practices to fit the conceptualization of sustainability that it is trying to become. Hence, it can deliberately shift holistically as a whole institution (Scott, 2014).

This extent of implementation of the university can still improve and may reach a very great extent if the identified challenges are addressed accordingly. There are several entry points for the university to go through to make implementing the greening program more holistic. It can start with more proactive leadership and renewed commitment from the top management. The leaders must evaluate the program's milestones by monitoring the existing projects or activities. The gathered data and evidence can be utilized to seamlessly integrate the greening programs into all the university's operations.

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**Fourth**, the administrators, in their regular management review, need to revisit the existing policy and evaluate its effectiveness and how it contributed to the fulfillment of the greening program. It can maximize its resources by smoothly integrating the digitalization of all the relevant processes for greater efficiency.

**Fifth**, there must be a retooling of all the university's stakeholders. Since human resources are the university's most invaluable resource, they can either make or break the greening program. Hence, they must be enculturated into the values and identity they must embody as co-agents of change in greening the university. Regular enculturation aligned to the university's vision, mission, and core values must be done so that they will eventually internalize the real essence of their role in fulfilling the ESD in pursuit of SDGs. Enculturation can be done through an awareness campaign, orientation, seminars, training, field exposure, reskilling, and upskilling.

Finally, given the above context of the university, it can work on a whole institution approach which is a holistic, open, accessible, and reflective process in which every member can participate. Also, to advance the integration of ESD, it is essential to integrate ESD structures and content across all areas of the university. Consequently, it will warrant that the university's research activities will generate knowledge that will contribute to shaping the sustainable development of the institution. Hence, making the university an authentic place for learning (Sherak & Rieckmann, 2020).

The greening endeavor of the university requires more proactive effort in terms of its implementation. However, the fervent commitment of the university to sustainable development, as manifested in its vision, will be its prime mover to continually improve its operation to attain its target of becoming a green institution in the global community by 2030.

### CONCLUSIONS

HEIs have a fundamental role in creating a sustainable world through research, education, and community engagements, among others. The presented extent of ESD implementation of the university manifests its bold commitment to molding learners with sustainability skills to help create a just and sustainable future. Also, the different endeavors for the five pillars of the greening program are ways to reorient education to address sustainability and create public awareness and understanding of sustainability. All of these complement the interrelated priority areas of ESD.

At present, the university is still a work in progress, especially in the areas of green curriculum and green technology. Nonetheless, it can take advantage of the prior initiatives, build on what had been started, and work further on the other areas for improvement. Through the renewed commitment of the top management to the holistic approach of the greening program, it can help manifest among the members of the university that each one is vital in contributing to the overall reorientation of education towards sustainability.

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