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Measuring the performance of higher education among state universities and colleges in SOX Region, Philippines

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ABSTRACT

As state universities and colleges (SUCs) in the Philippines are confronted by tough competition for limited resources, and to show to government legislators that subsidy on tertiary education meaningfully produces significant returns; thus, they are pressed to undertake continuous improvement for optimum performance. Practically, measuring the performance of SUCs is essential to identify critical issues, make informed decisions, and enhance higher education policies. In this descriptive-evaluative study, the institutional performance was measured using the Fiscal Year 2016 SUC levelling instrument of department of budget management (DBM) and the commission on higher education (CHED), covering four key result areas (KRA): i) Relevance and quality of teaching; ii) Research productivity, iii) Community engagement; and iv) Resources management. Respondents included 217 faculty members and 24 deans from the four SUCs in SOX Region, Philippines. A combination of descriptive and inferential statistics was used in the data analysis. Results indicated that the SUCs fared randomly in the leveling scheme. SUC-Y got excellent performance, while SUC-X tailed at a very satisfactory rating in all areas. Statistical tests showed that SUC-Y was relatively superior to the other SUCs. Moreover, the performance of SUC-W and Z were comparable and found as the lowest in the group. The major issues and challenges affecting institutional performance include multi-tasking or designation of faculty to administrative positions, inadequate laboratory facilities, and limited online modality for laboratory subjects.

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1. INTRODUCTION

Higher education is viewed as an investment in the capacity of the country's citizens to contribute to national and local development and not merely to economic prosperity. It supports the global agenda facilitating a sustainable, peaceful, progressive global community. Accordingly, it remains a significant channel for social mobility and the means to share peace and progress in this complex world [1].

Experts claim that higher education is a strategic driver of growth performance, prosperity, and competitiveness. In 2017, the World Bank [2] cited that higher education contributes "to end extreme poverty, boosting shared prosperity, and building a stronger society. It can serve the community by supplying advanced skills and knowledge as well as research and basic competencies." On a societal level, it produces an educated human capital. At the same time, on an individual scale, it provides an opportunity for personal

development, fulfillment, and economic mobility. Bloom *et al.* [3] noted that countries with a greater proportion of educated graduates in the labor force have greater productivity and increased capacity to adopt technology and innovate. Likewise, Addo [4] found out that lifting the average level of education in the male labor force by a year increases the growth rate of gross national product by about 1%. As reported, the economic returns for higher education graduates were estimated at a 17% increase in earnings and the highest in the educational system [5]. Other authorities admitted too that sustainable development could not be realized without the capacity-building impact of an innovative higher education system [6].

Moreover, governments have an essential role in promoting higher education, primarily in public universities and colleges, to meet its desired benefits [7]–[11]. In Asia, despite differences in governance and administration, the countries share a common element: higher education operates as a strategic lever for long-term and sustainable development [12]. Thus, investments in higher education are deemed critical to attaining enhanced productivity, growth, and technological development. Evidently, the growth rate of the entire economy is often associated to the magnitude of investment in higher education [13]–[18]. Bridges *et al.* [19] advised that higher education needs to "re-purpose and re-think its role" to meet the changing needs of countries in transition. Thus, universities should strive to be everything to everyone.

With the socio-economic significance of higher education, most countries around the globe strongly support it through subsidies or public funds. They acknowledged that it is a critical element of economic competitiveness [20]. Higher educational institutions stimulate higher economic growth, greater productivity, increased creativity, and innovation. The growth rate of the entire economy rises over sizable investment in higher education [21]. Other studies indicated the varying extent of public subsidy across countries. Some of these even showed the patent decline in government funding both in developed and developing countries in the last two decades, primarily because of economic recession and other priorities [22]–[25].

Most public higher education institutions in the Philippines are state universities and colleges (SUCs). There are 112 SUCs distributed in provinces all over the country [26]. Still, other government-run postsecondary schools include specialized academies, Commission on Higher Education (CHED)-supervised higher education institutions (CSIs), and local colleges and universities (LCUs). The principal goal of creating and maintaining the SUCs is to provide access to more affordable and good-quality education for the poor and deprived, to ensure higher equity of access to higher education, and to facilitate tools for regional and national development. Amidst their triad functions of instruction, research, and extension, they categorically contribute to the vital task of reducing poverty, pursuing more innovations, creating new knowledge and functional skills, and increasing the productivity of the communities.

Measuring SUC performance is crucial because of the continuing issues affecting the country's higher education system. Until now, the system has been shaken by inequitable financing of public higher education, lack of overall vision, framework, limited and undemocratic access to higher education, and plan for higher education resulting in the proliferation of low-quality higher education institutions (HEIs) and programs, oversubscribed and undersubscribed programs as well as skills and job mismatch [27]. Nevertheless, the passage of the Universal Access to Quality Tertiary Education Act addressed one of these core challenges [28]. In their study, Filipino high-school graduates with no financial capacity to advance to the college level account for 40% [29]. As the new law provides free tuition and other fees to all students in SUCs, it responds anyhow to the issue of access.

By tradition, the performance of higher educational institutions is measured by the likes of the number of faculty and student enrolment rates. These measures nonetheless provide partial information on how colleges and universities are performing. In Ontario, Canada, three primary objectives for an outcomes-based performance measurement system are considered vis-a-vis educational quality, equity of opportunity, and financial sustainability. Besides, seven outcomes-based indices are identified to measure students' skills, graduate outcomes, economic and social mobility, students' transfer patterns and graduation rates, and the financial sustainability of institutions [30].

In the United States, the News and World Report (USNWR) used several measures to secure each college's different dimensions of academic quality. These consist of graduation and retention, graduation rate performance, graduate indebtedness, social mobility, faculty resources, expert opinion, financial resources, student excellence, and alumni giving. The approach uses data about inputs and outcomes [31]. In the UK, however, they presently consider institutional and sector indicators to assess higher education performance after developing it over the years. The institutional level refers to associated benchmark values, while sector indicators focus on access, retention, employment, and research [32]. In contrast, QS World University Ranking, the world's most popular source of comparative data on university performance, utilizes six metrics: academic reputation, employer reputation, faculty to student ratio, citations per faculty, international faculty ratio, and international student ratio [33]. The QS names the world's top universities for studying 51 different subjects, five composite faculty areas, and regional tables for Asia, Latin America, Emerging Europe, Central Asia, and the Arab Region.

Locally, the CHED and the Department of Budget Management (DBM) have issued joint circulars in the past regarding key result areas (KRAs) for evaluation of SUCs. These areas represent the major indicators that measure the stages of development and institutional performance of a state college or university. In 2016, they modified the old guidelines by issuing DBM-CHED Joint Circular No. 1, s. 2016. The criteria for institutional evaluation focus on four KRAs relevance: quality of teaching, research productivity, community engagement, and resources management.

On relevance and quality of teaching, the SUCs are assessed in terms of students' full-time equivalent, student scholarship, student financial assistance, inter-country student mobility, employability of graduates, faculty profile, accreditation status, the center of excellence or development, and performance in the licensure examinations. Research productivity includes the number of the established research center, faculty involved in research, presented research, published research, externally funded research, citations, and inventions. Community engagements are the achievements regarding linkages and partnerships with other organizations, community, or population that was served, adopters, and viable demonstration projects. In resources management, the evaluation is categorically focused on faculty and staff development programs, the percentage of total internally generated income to the total government subsidy, the average total disbursements to total obligations, and the awards given by reputable organizations [34]. Similar metrics were used in the study [35], linking institutional performance with digital governance in SUCs.

As an objective mechanism, definite and quantifiable performance indicators are required for each KRA. The final total rating serves as the basis for categorizing a SUC as Level I, Level II, Level III, Level IV, or Level V. The highest level indicates that an institution is comparable to the best universities or colleges in Asia. In contrast, Level I status merely shows that a college or university is in the early stage of development. Accordingly, the level granted does not only signify the performance of a SUC as correlated to other institutions but rather shows its developmental phase relative to existing standards. With a higher SUC level, an institution is expected to enjoy both prestige and benefits. Moreover, the level also means responsibility. An advanced SUC level corresponds to a more challenging role and expectations. Conversely, a lower level may need less compliance with standards. However, it demands superior accomplishments to attain the envisioned status.

Notwithstanding the significant public funds being expended yearly for SUCs, it is noted that only a few are performing well; some are satisfactory, while others are not, as reflected in 2007 [36] and 2016 SUC leveling evaluation results [37]. Understandably, the state of their actual performance needs to be thoroughly examined so that critical issues can be determined and that suitable decision can be made. As one of the government's top priorities, the success of higher education depends greatly on the funding system and a credible performance evaluation. SUC performance is most often linked to productivity, efficiency, and accountability. Currently, there is a dearth of studies on institutional performance, while several papers have been published on the efficiency and productivity of SUCs [38]–[40].

With the foregoing context, the present study is focused primarily on: i) Evaluating the performance of state universities and colleges in the SOX Region essentially on teaching, research, extension, and resources management; ii) Looking at the differences in performance among state universities and colleges; and iii) Identifying the prominent issues and challenges that affected SUC performances.

2. RESEARCH METHOD

The study used a descriptive survey that is essentially evaluative and comparative in nature. It is evaluative because it assessed the level of the overall performance of each SUC in the SOX Region, Philippines. The evaluation covered the four key KRAs and the issues and challenges affecting institutional performance. It is also comparative since it sought to compare the performance of every SUC. Basically, the measurement of SUC performance was consistent with the national guidelines as embodied in the DBM-CHED Joint Circular No. 1, s. 2016 regarding SUC Leveling criteria and mechanism. The evaluation method can be outlined using the model, as shown in Figure 1.

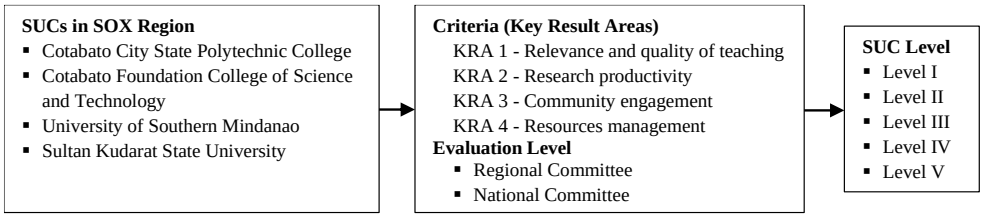

Figure 1. SUC evaluation mechanism

Respondents of the study were the faculty members and deans of the four SUCs in the region. To protect the identity of these institutions, a code in terms of W, X, Y, and Z was used to represent them. Around 22% of the respondents were from SUC-W, 16% from SUC-Z, 35% from SUC-Y, and 29% from SUC-X. The proportional allocation formula was used as the basis for the distribution of the respondents by SUC [41], with the target population by group presented in Table 1. The setting of the study was in the SOX Region, Philippines. It involved four SUCs, namely: i) Cotabato City State Polytechnic College (CCSPC) in Cotabato City; ii) Cotabato Foundation College of Science and Technology (CFCST) in Arakan, Cotabato; iii) University of Southern Mindanao (USM) in Kabacan, Cotabato; and iv) Sultan Kudarat State University (SKSU) in Tacurong City, Sultan Kudarat.

The study utilized the stratified random sampling technique. The respondents were clustered into two strata wherein each has data of interest that are fairly homogeneous within the given stratum [42]. The sample size was determined using Slovin's formula, which in turn was distributed further to every SUC according to the number of faculty using the proportional allocation formula [41]. A simple random sampling scheme was used in selecting the specific faculty participants. On the other hand, the total enumeration of respondents was applied to deans of colleges since their number was just very small. However, in line with the Data Privacy Act of 2012 [43], where the involvement of the participants was voluntary [44], and they also have the right to refuse [45], six of the deans did not participate. As a result, only 295 out of 301 targets responded, implying a 98.00% response rate. They gave their informed consent to collect and process the information for the study. The sample size by SUC and group is shown in Table 1.

Table 1. Population and sample distribution of the study by SUCs and group

Group	Target population	Number of samples				Percentage
		SUC –W	SUC –Z	SUC –Y	SUC –X	
Faculty	1,130	58	43	94	76	97.41
Deans	30	6	4	10	10	2.59
Total	1160	64	47	104	86	100.00

The study employed both primary and secondary data. Secondary data were obtained from SUC leveling assessment results covering the period of 2013-2015, which the Regional Evaluation Committee duly validated. These data were collected through the Fiscal Year 2016 Leveling Instrument for SUCs - an evaluation guideline prepared jointly by the DBM and the CHED of the Philippine Government in coordination with the Philippine Association of State Universities and Colleges (PASUC). The tool quantifies institutional performance in four areas: relevance and quality of teaching, research productivity, community engagement, and resource management. In contrast, the primary data about issues and challenges affecting institutional performance were gathered via a survey questionnaire.

In gathering data, the researchers initially requested the endorsement of CHED Regional Office XII as the latter has supervisory functions over the SUCs. Another letter request was made to seek permission from the SUC Presidents to administer the questionnaire among the respondents after the CHED's consent was secured. Upon approval, the distribution of the questionnaires followed. The researchers solicited the assistance of the different college deans of each SUC in distributing the tools to the respondents. All the gathered data were treated with the utmost confidentiality. They were used solely for research purposes per Data Privacy Act [43]. In data analysis, the criteria for SUC leveling were adopted to assess institutional performance. To interpret the results, the categorization of different SUCs from Level I to Level V, with the latter as the highest in terms of institutional performance, was modified as shown in Table 2.

Analysis of a two-way classification (without interaction) was used to test whether there is a significant difference in the points obtained by each SUC following the procedures by Hechanova [41]. Least Significant Difference (LSD) was similarly used to test the significant differences among treatment means. Also, the ranking was utilized to determine the leading issues and challenges affecting the institutional performance of SUCs in the region.

Table 2. SUC performance interpretation

Level	Descriptive rating
V	Excellent
IV	Very satisfactory
III	Satisfactory
II	Average
I	Fair

3. RESULTS AND DISCUSSION

3.1. Level of institutional performance according to SUC leveling criteria

CHED organized the regional evaluation committee to assess the various SUCs within a geographical region. Subsequently, the detailed breakdown of points for SUC Levelling covering Fiscal Year 2013-2015 by the committee is shown in Table 3. As presented, SUC-Y obtained the highest points of 46.125, described as excellent based on modified SUC performance interpretation in Table 4 with the breakdown: 14.25 points for relevance and quality of teaching (KRA 1), 13.325 for research productivity (KRA 2), 14.00 for community engagement (KRA 3), and another 4.50 for resources management (KRA 4).

Table 3. Detailed breakdown of points for SUC levelling covering Fiscal Year 2013-2015

Key result area (KRA)	SUC-W	SUC-Z	SUC-X	SUC-Y
1. Relevance and quality of teaching	8.00	6.95	11.00	14.25
– # Of weighted full-time equivalent students	1.50	0.50	1.50	2.00
– Scholarship	0.50	1.00	0.75	1.00
– Students and financial aid	0.50	0.50	0.50	0.50
– Intercountry mobility	0.00	0.25	0.25	0.25
– Employability	0.50	0.20	0.50	0.50
– Faculty profile	1.50	1.50	1.50	2.00
– Accreditation	3.00	2.00	3.00	3.00
– COE/COD/PIAF	0.00	0.00	1.00	3.00
– Board performance	0.50	1.00	2.00	2.00
2. Research productivity	5.50	5.25	10.125	13.375
– Research centers & percentage researchers	0.50	0.50	2.00	3.00
– Externally funded research	0.75	1.25	2.00	2.00
– Publication	2.00	1.875	1.50	3.50
– Paper presentation	2.25	1.50	2.375	3.00
– Citation	0.00	0.125	0.25	0.375
– Invention	0.00	0.00	2.00	1.50
3. Community engagement	7.00	7.75	10.50	14.00
– Active linkages	1.00	2.00	1.00	3.00
– Community served	3.50	3.50	3.50	3.50
– Adopters	2.50	2.25	4.50	4.50
– Demonstration project	0.00	0.00	1.50	3.00
4. Resources management	3.625	2.00	3.625	4.50
– Total disbursement to total obligation				
– Internal income				
– Faculty and staff development				
– Awards received				
Total	24.125	21.950	35.250	46.125
Performance level	Satisfactory	Average	Very satisfactory	Excellent

Specifically, the relevance and quality of teaching earned a maximum point for COE/COD/NUCAF, the average number of weighted full-time equivalent students per semester, faculty profile, scholarship, financial assistance, and employment of graduates at 3.0, 2.0, 2.0, 1.0, 0.5, and 0.5 points, respectively. Moreover, its accreditation and board examination performance were distinctly credited with 3.0 and 2.0 points. At the same time, students' involvement in inter-country mobility settled for the lowest point of 0.25.

With regards to research productivity, the institution's 13.375 points were drawn from a perfect score of 3.5, 3.0, 3.0, and 2.0 points in the paper publication being indexed by Elsevier, Scopus, Thomson Reuters, and CHED; the research center, including the percentage of the researchers to total faculty plantilla; paper presented at international, national, and local conferences; and externally funded research. The SUC was also credited with 0.375 and 1.5 points in total citations and innovation. Its community engagement posted a maximum score of 14.0 for its active linkages and partnerships with other organizations, training, adopters, and viable demonstration projects. Its resources management was given a score of 4.50.

The university needs to increase students' involvement in inter-country mobility, pursue institutional accreditation, increase the number of inventions, increase the number of citations in articles published by other researchers, and improve resources management. In contrast, SUC-X ranked second with a total point of 35.25, categorized as very satisfactory, breaking into 11.00 points for KRA 1, 10.125 for KRA 2, 10.50 for KRA 3, and 3.625 for KRA 4. In detail, KRA 1 ratings were accumulated from the maximum points of 0.50 each for student financial assistance and employment of student graduates. Moreover, it also earned 3.00 for accreditation; 2.00 for its performance in the board examinations; 1.50 points for the average number of weighted full-time equivalent students per semester; 1.50 for faculty profile; 1.00 for PIAF; 0.75 for scholarship; and 0.25 for student involvement in intercountry mobility.

For KRA 2, it is broken down as: maximum points of 2.0 points apiece were credited to externally funded research and inventions being patented. It also garnered 2.375 points for research-based paper presentation, 2.00 points for the research center, including the percentage of researchers to total faculty plantilla, 1.50 points for publication, and 0.25 points for citation in articles. Concerning KRA 3, 10.50 points were obtained by the contribution of two maximum points of 3.50 and 4.50 each for the community served in the last 3 years and for adopters, respectively. The remaining ones were attributed by 1.50 points for viable demonstration projects and 1.00 point for linkages with other organizations, respectively. Furthermore, KRA 4 obtained 3.625 points for the management of its resources. The findings indicated the need for SUC-X to improve its management of resources; increase students' involvement in intercountry mobility; increase the number of active linkages and viable demonstration farms; increase the percentage of faculty involved in research and publication, and as well as pursue center of development (COD) evaluation.

SUC-W ranked third with a total of 24.125 points interpreted as satisfactory, drawing its points of 8.00 from KRA 1, 5.50 points from KRA 2, 7.00 points from KRA 3, and another 3.625 points from KRA 4. Finally, SUC-Z settled for 4th place with a total rating of 21.95 points, described as average with the following breakdowns: 6.95 points for KRA 1; 5.25 for KRA 2; 7.75 points for KRA 3; and 2.00 points for KRA 4. The poor performance of SUCs on some noted items can be attributed to: i) Negative impression by the stakeholders about the location of SUC, which probably discourage inbound students from undergoing on-the-job training (OJT) at the institutions; ii) Relaxed admission and retention policies, especially during the time of pandemic; iii) Heavy interruption of classes due to other equally important activities like training/seminars, and other functions of faculty; iv) Technological handicap of senior faculty for the blended mode of instruction; v) Poor Wi-Fi connectivity; vi) Multi-tasking of the faculty; vii) Research capability of the faculty leaves much to be desired as they have not yet fully embraced the research culture; vii) Limited funding for extension services; and ix) dole-out mindset of the benefactors of the projects.

The environment and culture for knowledge search are not well-developed in the Philippines [46]. Thus, it is essential for the institution to strengthen research to enable the country to join the ranks of world-class nations. Additionally, the faculty members' heavy demand for time to teach hindered them from actively engaging in research since they are expected to perform other functions besides instruction [47].

Examining the weaknesses of the two SUCs, it surmises the demand to increase student involvement in intercountry mobility; pursue institutional accreditation and COD for its program offering, and improve the performance in the Board examinations. For its research, it suggests the need to establish research centers, promote a research culture to increase faculty involvement, paper presentation, and publication, and inventions. As more papers are being published, citations will also tend to increase. For this reason, it entails strong support for faculty researchers, forging research partnerships, sourcing external research funding, and instituting an attractive incentive system for research and extension engagements [48]. Likewise, it calls to expand the number of partnerships with other organizations to improve the adopters who will subsequently engage in viable demonstration farms, enhance faculty and staff development initiatives, and institutional performance to recognize reputable organizations.

3.2. Difference in the final rating in SUC leveling by the regional evaluation committee

Table 4 presents the analysis of variance and mean comparison of the performance of four state universities and colleges. A test was carried out for the significant difference at a 1% significance level. Eventually, a post hoc analysis using the LSD was performed. Results of the evaluation bared that SUC-Y obtained the highest mean of 12.603, followed by SUC-X and SUC-W with a mean of 9.610, and 6.439, respectively. SUC-Z stands out at the last rank with a mean of 6.024.

As indicated, the F-computed value of 15.134 exceeds the F-critical value of 3.86. Thus, it is evident that there is a significant difference in the evaluation results of SUC performance in the SOX Region. As statistically significant, LSD was aptly used to test the acknowledged differences. It showed that SUC-Y has the highest weighted mean yet is comparable to SUC-X, while SUC-Z's minimum rating is apparently comparable to SUC-W.

Table 4. One-way analysis of variance and mean comparison of SUC levelling evaluation

SUCs	Mean*	F-computed	F-crit(df=3/9)
SUC-W	6.439^{bc}	15.134	3.86
SUC-Z	6.024^{c}		
SUC-X	9.610^{ab}		
SUC-Y	12.603^{a}		
CV=16.53%	LSD value @ 1% =3.294		

*Mean having similar superscript is not significantly different using LSD test

Implicitly, there is a need to strengthen the region's big brother and small brother relationship among SUCs. It will reduce the gap in institutional performances so that emerging SUC can be properly supported. In fact, Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development had effectively adopted this strategy where the R&D program they kept on sustaining was undertaken by multi-agency to strengthen collaboration. Logically, the amalgamation of SUCs within the region aimed to establish one regional university system (RUS) is a potential option to improve Institutional Performance [49]. This amalgamation concept is in line with CHED's 2011-2015 Strategic Plan to rationalize higher education institutions and programs to improve the efficiency of the higher education system in the Philippines [50]. With few RUS around, achieving a comparable HEI quality with other countries, notably the ASEAN members and the rest of the world, is very workable [51]. Obviously, the amalgamation scheme led to the advancement in administrative practices of HEIs in the province of Ilocos Sur, Philippines [52]. The cases of Goergia, Texas, and Wisconsin in the United States on the consolidation of public colleges and universities also claimed some positive results on student outcomes [53].

Generally, the difference in SUC leveling indicates the varying profiles of the faculty, students, and senior leaders, including leadership styles and practices, processes, and the institution itself. The competencies and educational attainment of the faculty have a direct bearing on the quality of education. Research showed that the educational attainment of faculty has a positive and significant influence on the Board examination performance of students [49]. Similarly, the majority of research on the academic performance of students is affected by three dominant factors: parents, teachers, and students [54]. Poor academic performance was significantly correlated with irregular class attendance, fathers' low education, partial family cooperation, excessive use of social media, and too much time spent on slandering [55].

On the other hand, the success of college students facing personal, academic, and societal challenges depends on two factors: i) The attributes they bring to the classroom; and ii) The quality instruction they receive [56]. Accordingly, Hattie [57] encourages an instructor's recognition and use of these attributes toward students' motivation to learn. This observation is also supported by different rankings these SUCs enjoy based on SUC leveling criteria [37]. Besides, there is a significant difference in the level of quality management excellence of the SUCs in the SOX Region, indicating varied management and leadership styles, practices, processes, and profiles of human resources across SUCs [58].

3.3. Issues and challenges affecting institutional performance among SUCs in region XII

The third research objective deals with the issues and challenges affecting institutional performance among SUCs in SOX Region. In an open-ended question, out of 295 faculty and deans who responded, only 170 or 57.63%, opted to respond the survey questionnaires. Table 5 discloses the findings. Analysis of the ranked responses indicated the 10 leading concerns in descending order as presented in Table 5. In addition, the respondents cited the following to be challenges of lesser significance: research culture not yet fully embraced by the faculty, limited publication or citation in referred journals indexed by Scopus, Thomson Reuter, Elsevier, or CHED, limited enrollment for some priority courses like agriculture, limited opportunity to training/seminars, limited active linkages with other organizations, low adaptor's rate engaged in profitable enterprises, and low employment rate of graduates within two years.

Table 5. Issues and challenges in SUCs in region XII as observed by the respondents

Rank	Issue and challenges
1	Multi-tasking of faculty engaged in other functions aside from instruction
2	Inadequate Laboratory facility
3	Limitation of the online modality for laboratory subjects
4	Poor Wi-Fi connectivity & additional burden for the load
5	Negative impression of the stakeholders about the location of the institution, which restricts inbound students to take OJT at the institution
6	Strict adherence to procurement law
7	Technological incompetence of the faculty
8	Inadequate succession plan
9	Limited funds for extension
10	Dole out the mindset of the beneficiaries of the extension project
11	Research culture is not yet fully embraced by the faculty
12	Limited publication or citation in a referred journal indexed by Scopus, Thomson Reuter, Elsevier or CHED
13	Limited enrollment for some priority courses like agriculture
14	Limited opportunity for training/seminars
15	Limited active linkages with other organizations
16	Low adaptor's rate engaged in profitable enterprises
17	Low employment rate of graduates within two years

The foregoing enumeration of issues and challenges relative to the SUC performance in key result areas confirmed to some extent Cuenca's [39] study that provided empirical proof of the inefficiency of the majority of SUCs in the country. The data envelopment analysis (DEA) showed that only very few efficient SUCs were indicated by their efficiency scores. On the issue of multi-tasking of faculty, it can be primarily due to a lack of non-teaching personnel supposedly dedicated to functions of SUCs on the administration of programs and management of resources. Instead of spending time and focusing on instruction, research, and community outreach, they are preoccupied with administrative tasks making them ineffective and inefficient. The challenge entails additional plantilla items for researchers, staff, extension workers, and administrative officers. Thus, the derailed proposal on the revised organizational structure and staffing standards for SUCs (ROSSSS) had to be revived, pursued and implemented. As regards the laboratory facilities issue, most SUCs are heavily populated because of the student influx due to lower tuition and other fees. They also offer science, technology, engineering, and mathematics (STEM) programs that are essentially laboratory-based; hence, the demand for laboratories and other related needs is high. The sufficiency of laboratory facilities for science teaching depends largely on the population of students in a particular school [59].

In addition, the limited online modality for laboratory classes is noted as one of the principal issues identified by the respondents. As the advent of the COVID-19 pandemic was unexpected and abrupt, the SUCs could not prepare squarely for their laboratory flexibilities. The situation was common in most schools and curricular programs dependent on laboratory exercises and experiments. In their study, Zhai, Wang, and Liu [60] reported that virtual laboratories, remote control laboratories, or video-based laboratories are good alternatives when students are not physically present in school. For virtual labs, simulation tools and virtual reality are utilized. In contrast, remote labs let the completion of experiments via the internet, while video-based activities afford a systematic overview of a real lab so that students can properly visualize the experimental process and its environment through a video. These realities suggest that SUCs should invest more in upgrading the internet connectivity and educational technology labs by collaborating with the department of information and communication technology (DICT) and other software developers.

4. CONCLUSION

The SUCs in the SOX Region, fared differently in performance as measured regarding the relevance and quality of teaching, research productivity, community engagement, and resources management. Variations in achievement levels in these key result areas are attributed to the issues and challenges that were noted, like the multi-tasking of faculty members, the inadequacy of laboratory facilities, and the limitation of online modality for laboratory subjects, to name a few. These prominent problems are largely related to funding, planning and prioritization, and stakeholders' values. With sufficient subsidies from the national government, all SUCs can hire enough number of faculty to avoid multi-tasking arrangements. It can also procure essential laboratory facilities and build competent ICT infrastructures. The government should now refocus some of its fiscal priorities on improving the budget allocation for SUCs.

Nonetheless, adequate funding alone may not address the performance issue of SUCs but suitable planning as well. The setting of priorities in selecting programs, activities, and projects to be considered and implemented should be based on urgency, importance, and relevance. These should be the primary factors in formulating short, medium, and long-term institutional, regional, and national plans. Most importantly, the stakeholders of SUCs, i.e., the administrators, faculty, students, community, and clienteles, should clearly understand and completely adhere to the SUC core values, mission, goals, and objectives.

The findings of this study may not be generally conclusive due to its limited scope as it focused merely on a specific geographical region. Nevertheless, it can be practically expanded into a national scale because the commission on higher education has actual custody of the complete data on evaluating all SUCs in the country across the key result areas. Accordingly, a more comprehensive analysis of these significant yet untapped data may be carried out to validate the current inferences. As a result, the CHED can have sufficient basis to decide and eventually revisit its existing public higher education agenda. It will pave the way for crafting an updated, responsive, or new roadmap to demand higher accountability of outcomes and impacts from state universities and colleges.

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