Sustainability of research and extension programs of state colleges in Southern Mindanao: Its impact on rural development

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*Abstract: The study was designed to determine the sustainability of research and extension programs of State Colleges in Southern Mindanao and the impact on rural development. Specifically, it described the manpower profile of the respondents; research practices and extension services; sustainability level of R & E; impact of research and extension; relationship of manpower profile with R and E; research with the extension; influence of research and extension on the sustainability level. Simple random sampling technique was utilized to ascertain the respondents of the study. Among the 60 respondents, most were within the range of 38 - 46 years old; are males; have 5 years length of service; are BS degree with master's unit; have 2 research and extension conducted a year; have published and presented one (1) research paper; and R & E related trainings. The respondents' research practices and extension services considering priorities and relevance, funding and resources, planning, implementation, monitoring, and evaluation, utilization of outputs, and publication/dissemination, and community involvement and participation were oftentimes practiced. The research and extension services on economic viability, cultural acceptability, ecological friendliness, social equity, and technological friendliness were found highly sustainable; in which it follows that research outputs utilization, publication and dissemination were highly carried out; likewise with extension having high impact on beneficiaries' developed skills and attitudes, that includes enhanced economic aspects. As to manpower, gender significantly influenced the research program (R= -0.311**), which implies a reverse relationship. Thus, male which is significant in number against female respondents indicates imbalance participation of women. A significant influence of the research and extension services to the sustainability level of State Colleges was also found having implementation, monitoring and evaluation as leading predictors. Generally, the research and extension services of the State Colleges in Southern Mindanao were highly sustainable and there is high impact on rural development. Nevertheless, encouragement of research and extension activities on the part of females is desirable.*

Keywords: Sustainability, Research, Extension, SUC, rural Development,

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INTRODUCTION

As the threshold of globalization opens for Filipinos, the public around the world talks on economic development, but not on the sustainability issues. Sustainability is very important to be undertaken to address the effect of climate change being experienced nowadays. The World Summit for Sustainable Development (WSSD) 2002 emphasized that sustainable development must be built on three interconnected pillars: economic, social, and environmental protection. These must be established at local, national, regional, and global levels to lead to Poverty Alleviation, Human Rights, Biodiversity, Clean Water and Sanitation, Renewable Energy, and the Sustainable Use of Natural Resources (Chang Chui, 2007).

The viability of an activity should be evaluated in the context of the environmental, social, and economic needs of the present and future. Sustained research and extension activities have roles in the development of institutions like State Colleges. Furthermore, the importance of research and extension

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cannot be undervalued. It is the concern of each and every one for the growth and development of an institution.

State universities and colleges are directed by the Commission on Higher Education (CHED) to exercise the fourfold functions: instruction, research, extension, and production. In this paper, the concentration is on the sustainability of research and extension and its impact on rural development. Instruction and research both support one another inextricably linking knowledge and new knowledge with practical application (Ammakiw, 2013).

Similarly, research is very worthwhile experience. It is through research that a college could keep up-to-date with information and improvements. It is the path through which educators can contribute to the enrichment of existing reservoir of knowledge. It also can take active part in search for solution to current problems, and can perform their roles as agent of social change. A study that was conducted by Orale (2010), found out that the number of publications made by the Philippine SUC's president which includes publications even before they become HEI heads were negligible for access.

Universities are important institutions that play a critical role in contributing to scientific knowledge and innovation, both of which are necessary for economic growth (Greenspan and Rosan 2003).

On the other hand, Bidad and Campiseño (2010) argue that SUCs offer a wide variety of extension programs and services designed to improve the community life of their customers. On the other hand, other people argue that SUCs should focus on their primary purpose of providing students with affordable tuition and other related costs. To benefit the poor, they must be empowered to participate effectively in government, with access to education and other resources to help them reach their full potential. Good governance demands that they be able to have a say in decisions that affect them, and that their institutions are able to provide them with the resources they need to build a better future.

A community extension office is an important part of a school's social involvement program. It allows students, faculty members, and administrative staff to share their resources and their expertise, and make a positive impact on the school community (Chua, 2014).

Developing a community of people with a common purpose can be beneficial to the living standards of those who are underprivileged, as well as the character and values of those who participate (Laguador & Chaves 2013).

However, the findings of AACCUP evaluation unfolded the impact of these programs are not evident to the community and other stakeholders. Hence, the conduct of this study which determined the sustainability of these two programs of State Colleges in Southern Mindanao and its impact on rural development were deemed necessary and desirable.

This study makes an endeavor to determine the sustainability level of research and extension of the State Colleges in Southern Mindanao and its impact on rural development.

RESEARCH METHODOLOGY

This study was conducted using descriptive correlation survey type of research in determining the relationship between the research and extension manpower profile, the research and extension activities, and the sustainability level of State Colleges in Southern Mindanao.

The study was conducted in four State Colleges in Southern Mindanao namely: Cotabato City State Polytechnic College (CCSPC) in Cotabato City; Cotabato Foundation College of Science and Technology (CFCST) in Doroluman, Arakan, Cotabato; Southern Philippines Agri-Business and Marine and Aquatic School of Technology (SPAMAST) in Malita, Digos City; and Davao del Norte State College in Panabo, Davao del Norte.

The total (60) respondents of this study were13 from CCSPC, 15 from SPAMAST, 12 from DNSC, and 20 from CFCST were selected using simple random sampling procedure.

To gather information and data, the researcher prepared a structured questionnaire. The questionnaire was patterned from the Accrediting Agency of Chartered College and Universities of the Philippines (AACCUP 2010) with modification.

The instrument was composed of four parts. Part I elicited the manpower and research and extension activities of State Colleges in Southern Mindanao. Part II assessed the research and extension program services of the State Colleges in the same area. Part III is designed to gather information pertaining to the sustainability level of the research and extension programs of the State Colleges in Southern Mindanao. The last part was covered the impact of the research and extension program services of State Colleges in Southern Mindanao. This was rated by the recipients of the R & E.

The data gathered were tallied and analyzed using statistical tools. For the manpower profile: age, gender, length of service and highest degree graduated; research and extension activities such as number of R and E conducted, publish, presented, and related trainings were analyzed using frequency count, percentage and mean. The level of research practices and extension services in terms of priorities

and relevance, funding and resources, planning, implementation, monitoring and evaluation, publication and dissemination, utilization of outputs, and community involvement and participation were analyzed using weighted mean.

The same through with sustainability such as economic viability, cultural acceptability, ecological friendliness, social equity, and technological friendliness; impact of R and E like utilization of outputs, publication and dissemination, skills developed, and economic enhancement were analyzed using weighted mean. The hypotheses of the study were tested using multiple regression analysis technique.

RESULTS AND DISCUSSION

Discussion includes the manpower profile of the respondents, research and extension activities, research practices, extension services; the sustainability level of the research and extension program services; and the impact of research and extension program services on rural development.

Manpower Profile

Table 1 describes the manpower profile such as age, gender, length of service, highest degree graduated. Research and extension activities such as R & E conducted, published research paper, research paper presented, and R & E related trainings attended.

Result exposes that most of the research and extension manpower were within the bracket of 38 – 46 years old, male, five years in service, BS graduate with MS/MA units, with an average of two research and extension conducted, one research published, presented, and they have research and extension related training annually.

The result denotes that the manpower of research and extension were having minimal research and extension activities as shown in Table 1. SPAMAST and DNSC were able to conduct researches on marine science like seaweed farming, mangrove rehabilitation and aqua - silviculture projects. On the other hand, it was noted that CCSPC and CFCST were able to conduct researches particularly on upland rice (Dinorado) since these two State Colleges are situated in areas ideal for the said varieties.

Table 1: Manpower profile of the research and extension in State College in Southern Mindanao.

Manpower Profile	Mean*/Freq. (N = 60)	Percentage (%)
A. Personal Profile		
Age		
21 – 28 years old	9	15.00
29 – 37 years old	15	25.00
38 – 46 years old	18	30.00
47 – 55 years old	10	16.67
56 – 64 years old	8	13.33
Mean Age = 40 years old		
Range = 43		
SD = 9.87		
Gender		
Male	34	56.60
Female	26	43.40
Length of Service		
Below 5 years	21	35.00
6 – 14	16	26.67
15 – 21	11	18.33
22 – 28	7	11.67
29 years & Above	5	8.33
Highest Degree Graduated		
BS with MA/MS Unit	25	41.60
MA/MS Graduate	15	25.00
MA/MS with PhD/EdD unit	6	10.00
Phd/EdD Graduate	14	23.40
B. R & E Activities	**Mean**	
No. of R and E Conducted	2.00*	
No. of Pub. Res. Paper	1.00*	
No. of Res. Paper Presented	1.00*	
No. of R and E Rel. Trainings	1.00*	

** mean*

Research Practices

This section presents the outcome of research practices in terms of priorities and relevance, funding and resources, implementation, monitoring and evaluation, utilization of outputs, and publication/dissemination.

Table 2 illuminates that research activities were managed by competent and capable faculty that is rated always, which implies that the research programs of the State Colleges under study are manned by qualified faculty. This is manifested by the conduct of the priority researches of the State Colleges such as upland rice production of CFCST, sea weeds production of DNSC, coco-sugar as priority project of SPAMAST, and the vegetable seeds distribution of CCSPC. The respondents expressed that shortage of skilled and experienced researchers is seemingly felt, yet the conduct of research was well managed.

As of 2014 the general appropriation of the State Colleges in southern Mindanao in terms of research and extension, the CFCST got the biggest fund in extension services resulting to almost all barangays of Arakan and some barangay of Antipas and Pres. Roxas covered the said extension services.

In the case of CFCST as of the moment there is no allotment for research. Instead, the budget was allotted for the Custodial Care Program (CCP). However, at times research proposals are submitted, the budget which will be taken from the 10% of the tuition fees.

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Data reflect that monitoring and evaluation of research activities are oftentimes practiced. As to monitoring and evaluation, gleaned data declare that research activities of the colleges under study have well-selected framework and methodology, expected outputs, clear and well- defined impacts and derivations of every study, reviewed every study to look into its relevance to the problems and needs of the local, regional and global communities. Moreover, methodology of every study conducted is well-examined by the institutional committee on research review and evaluation. Likewise, they oftentimes report on-going and undergo presentation of completed research studies in local in-house reviews by department.

The collated data on the research practices of State Colleges in Southern Mindanao in terms of utilization of outputs denote that research results and outputs are oftentimes utilized for the institutional improvement of instructional processes, for the transfer of the generated technology to the community. As noted, research outputs are oftentimes utilized and protected by IPR laws. At times there are new information, these are disseminated to the target beneficiaries through appropriate delivery system. It was further noted that results of the study generated projects and jobs to end users for commercialization and productivity.

The results imply that monitoring and evaluation had been properly practiced by State Colleges under survey. In support, program of research activities was shown where some faculty members take part in monitoring and evaluation aside from their participation in planning and implementation.

Table 2 also discloses that the colleges oftentimes encourage and support the faculty in instructional materials development, paper presentation, and dissemination of research results, such as; conferences, faculty seminars, and other communication media. Besides, research manuscripts/technical reports are well edited and written according to prescribed style. It is further noted that research results are oftentimes disseminated to target clienteles and presented in various media outlets. In addition, research results are published in refereed journals aside from a regular publication of a research journal. Library exchange of research publications had been oftentimes done. The results imply that research activities such as publication and dissemination were oftentimes practiced.

Table 2: Research practices of State Colleges in Southern Mindanao.

Indicator		***Mean***	***Description***
1.	Implementation	4.08	Oftentimes Practice
2.	Monitoring and Evaluation	4.16	Oftentimes Practice
3.	Utilization of Outputs	4.04	Oftentimes Practice
4.	Publication and Dissemination	3.99	Oftentimes Practice
Weighted Mean		4.07	Oftentimes Practice

Mean:ScaleDescription
4.51 – 5.00Always Practice
3.51 – 4.50Oftentimes Practice
2.51 – 3.50Sometimes Practice
1.51 – 2.50Seldom Practice
1.00 – 1.50Never Practice

Extension Services of State Colleges in Southern Mindanao

As to extension services, the data reflected in Table 3 represent that these are oftentimes practiced with a weighted mean of 4.26, which indicates that the extension activities conducted are anchored on the vision, mission of the institutions and these are based on the needs and resources of the community.

Moreover, the institutions identified the priority needs of the community and designated qualified faculty to represent every department in planning the activities. In the case of SPAMAST, the livelihood extended to its beneficiaries was coco-sugar production that helped them a lot to generate income. The said coco-sugar was marketed to the USA, and other countries. Furthermore, the beneficiaries also enjoyed the technology on banana production.

The DNSC major research outputs implemented through extension activities were the Pablo Pantawid Program and the Taclobo Tours. The pantawid project was initiated by the DNSC for the rehabilitation of seaweed farming in Davao Oriental and Compostela Valley being affected by the turbulent typhoon Pablo last December 2012.

The Taclobo Tours project was established based on the findings of the Save-Our-Shore project of the DNSC that most of the fisher folks in the area collected, sold, and utilized giant clams as viand. The said project saved the giant Clams (Tridacna spp.) and open livelihood income of the community. As per interview, the entrance fees collected, souvenirs sold to visitors and rentals of facilities had helped them generate income.

In the case of CCSPC, the beneficiaries were able to increase their income by putting up small scale enterprise such as selling fried banana. While, CFCST beneficiaries enjoyed their learned technology by selling their grafted rubber to people in the surrounding places engaged in rubber production. Moreover, the institution encourages the faculty in developing instructional materials and paper presentations locally or in a higher level.

Table also reveals that the extension services personnel in every college oftentimes employ participative planning. The qualified faculty had been given designations to represent every department and serve as extension coordinators to participate in planning. Key officials of the institution, stakeholders and beneficiaries, students in every college/department are likewise oftentimes involved in the identification and planning of extension programs and activities and come up with a system to make the conduct of extension projects feasible and well-planned.

Appropriateness of activities to clienteles to serve varied groups is oftentimes given attention and consideration in planning. This implies that every extension program of each college encourages stakeholders' participation in planning extension activities.

The data in the table reflect that the respondents oftentimes performed their tasks in monitoring and evaluation, funding and resources, and community involvement and participation. It is indicated that the State Colleges closely monitor and evaluate the extension activities by visiting the adopted areas based on set schedules. Monitoring and evaluation instruments are available. Periodic monitoring and evaluation of extension activities are conducted to provide feedback on the program. Then, results of monitoring and evaluation are disseminated and discussed with concerned stakeholders.

In the case of CFCST, the office of extension services accomplished terminal reports, submitted on time and filed those reports to serve as references for the future planning. Aside from accomplishing those reports, the office also sources out additional funds from private personalities such as businessmen, prominent persons, the Local Government Unit (LGU), and Barangay Local Government Unit (BLGU) to augment the budget coming from the institution. The same is through with the CCSPC; this has strong partnership with the LGU, BLGU, and other line agencies in rendering their services to the target beneficiaries.

Table 3. Extension Services of State Colleges in Southern Mindanao.

Indicator	***Mean***	***Description***
1. Priorities and Relevance	4.35	Oftentimes Practice
2. Planning	4.25	Oftentimes Practice
3. Implementation	4.26	Oftentimes Practice
4. Monitoring and Evaluation	4.22	Oftentimes Practice
5. Funding and Resources	4.18	Oftentimes Practice
6. Community Involvement and Participation	4.31	Oftentimes Practice
Weighted Mean	4.26	Oftentimes Practice

Mean:ScaleDescription
4.51 – 5.00Always Practice
3.51 – 4.50Oftentimes Practice
2.51 – 3.50Sometimes Practice
1.51 – 2.50Seldom Practice
1.00 – 1.50Never Practice

Sustainability of Research and Extension

Sustainability of research and extension of the State College was measured according to the economic viability, cultural acceptability, ecological friendliness, social equity, and technological soundness of State Colleges in Southern Mindanao. It could be noted 4 that research and extension services programs are highly sustainable particularly in economic viability, cultural acceptability, ecological friendliness, social equity, and technology in all the indicators stated.

This means that the State Colleges considered respect of cultural differences among their personnel. As per interview, CFCST research and extension office has Magindanawn, Ilonggo, and Cebuano personnel but they work together for the accomplishment of the mission and vision of the institution. Further, the CFCST R and E encourages tree-planting in partnership with different colleges. In the college of education, they adopted area at Barangay Makalangot and Barangay Santo. Niño Arakan, Cotabato.

CFCST NSTP/CWTS likewise conducted tree-planting at Barangay Natubalan in the municipality of Arakan, North Cotabato. In terms of the selection of R and E clienteles it was based on the needs of the community. In the case of the adopted area of the CFCST college of education, the barangay Makalangot was chosen because of the findings that there is high malnutrition of the children in the said area. The barangay was ranked number 2 in terms of malnutrition.

CCSPC, SPAMAST, and DDNSC have installed internet connection ready at all times for use, for research and other purposes. On the other hand, the CFCST will soon have enhanced internet connection. Further, SPAMAST has the state-of-the-art laboratory where they conducted Imbao (Anodontiaphilippiana) brood stock management and spawning in controlled laboratory condition for the development of hatchery and aquaculture technique.

Table 4. Sustainability Level of Research and Extension of State Colleges in Southern Mindanao.

Indicator		***Mean***	***Description***
1.	Economic Viability	3.85	High
2.	Cultural Acceptability	4.23	High
3.	Ecological Friendliness	4.24	High
4.	Technological Friendliness	3.90	High
Weighted Mean		4.06	High

Mean:ScaleDescription
4.51 – 5.00Very High Sustainable
3.51 – 4.50High Sustainable
2.51 – 3.50Average Sustainable
1.51 – 2.50Fair Sustainable
1.00 – 1.50Poor Sustainable

Impact of Research and Extension

The factors considered to measure the impact of research and extension were the utilization of outputs, publication and dissemination, skills developed, attitudes developed, and economic enhancement.

Data show that research and extension had high impact on the utilization of outputs, publication and dissemination, skills developed, attitudes developed, and economic enhancement specifically in all items of the above mention indicators (Table 5).

The programs of the State Colleges apparently had helped in alleviating the beneficiaries from poverty. The research outputs were utilized through extension activities. In the case of DNSC the Taclobo tours project served as income generation of the community. The said program generated jobs for the fisher folks in the area by serving as tour guide, habal-habal (single motorcycle) drivers and established small scale sari-sari stores.

CCSPC extension services at barangay Solon, Sultan Mastura Municipality was likewise established and helped their beneficiaries by coming up with income generating projects and activities. The extension personnel had practically led the application of the knowledge and skills learned on how to raise funds out of banana and backyard gardening. CFCST has imparted the rubber technology resulting to income generating project by means of selling their budded rubber to the rubber planters. On the other hand, SPAMAST has their coco-sugar production.

Table 5. Impact of Research and Extension

Indicator	***Mean***	***Description***
1. Utilization of Outputs	4.07	High
2. Publication Dissemination	3.87	High
3. Skills Developed	3.79	High
4. Attitudes Developed	3.99	High
5. Economic Aspects	3.81	High
Weighted Mean	3.91	High

Mean:ScaleDescription
4.51 – 5.00Very High Impact
3.51 – 4.50High Impact
2.51 – 3.50Average Impact
1.51 – 2.50Fair Impact
1.00 – 1.50Poor Impact

Manpower Profile, Research and Extension

Table 6 presents the relationship of the manpower profile with research and overall R & E practices of the State Colleges.

Manpower Profile and Research Practices

For the research practices, it was found out that gender significantly influenced the research program (R= -0.311**). The negative relationship implies a reverse relationship. Thus, male which are significant in number against female respondents shows imbalance participation of the women.

This means that although women are more concern on research and extension programs but they could not perform intensive R and E activities due to their household chores such as attending the needs of their children, cleaning the house, and other works. Undergraduate respondents significantly showed higher number compared to master's and doctoral degrees, which means that the earned degree is not sufficient to support their capability to conduct intensive research and extension jobs where R= -0.254 and the overall R & E program (R= -0.243).

On the other hand, manpower relationship to research and extension published research paper has negative result since only few of the respondents had published research paper with (R2= 0.247) and has coefficient correlation of R2= 0.226. The average research published yearly by each college was only one research output.

Table 6 Manpower profile with Research and Extension programs of the state colleges

Manpower	**Research**	**Extension**	**Overall**
Age	0.033	0.097	0.006
Gender	-0.311**	-0.282*	-0.303**
Length of Service	-0.053	-0.002	-0.028
Highest Degree Attended	-0.223	-0.254*	-0.243*
R&E Conducted	0.006	0.027	-0.010
Published Research Paper	-0.236*	0.247*	-0.247*
Research Paper Presented	-0.169	0.226*	-0.201
R&E Trainings	-0.027	0.136	-0.083

Manpower profile and Research Program of the State Colleges

Table 7 presents the relationship between manpower profile with research practices of the State Colleges which discloses that gender of the manpower with t-value of -2.045* and p-value of .046 display a highly negative significant influence on research. The coefficient of determination R2 = 0.183 magnifies that 18.3% of the common variations of predictor variables was accounted to the sustainability of research.

The remaining 81.7% would be exposed by factors not included in the framework of the study. The computed F-value 1.416 surpassed the value with the probability =0.212 declares a highly negative significant model. This negative relationship implies a reverse relationship.

Thus, male which is significant in number against female respondents has minimal input on research activities. The finding implies that the State Colleges should promote gender responsiveness among faculty and staff to engage in research and extension.

The findings contradict to the study of Nicolas (2012) which found out that male and female are equal. She emphasized that women were already involved in traditionally male dominated activities as they are motivated to do multifarious responsibilities.

Table 7: Manpower profile and Research practices of the State Colleges.

Variables	Coef. β	Std. Error	t-value	Probability
(Constant)	4.417	0.702	6.296	0.000
Age	0.022	0.021	1.032	0.307
Gender	-0.462	0.226	-2.045*	0.046
Length of Service	-0.018	0.021	-0.836	0.407
Highest Degree Attended	-0.135	0.149	-0.907	0.369
R&E Conducted	0.025	0.031	0.801	0.427
Published Research Paper	-0.109	0.176	-0.617	0.540
Research Paper Presented	-0.017	0.093	-0.185	0.854
R&E Trainings	0.035	0.115	0.308	0.759

$R^2 = 0.183$
$F = 1.416$
Probability = 0.212^{ns}

Manpower Profile and Extension Services of the State Colleges

Table 8 presents the relationship of manpower profile with extension services of the State Colleges in Southern Mindanao.

There were insignificant relationships among the indicators of manpower profile and the extension services of State Colleges. The results signify that the manpower profile such as age, gender, length of service, highest degree attended, R and E conducted, published, presented, and related trainings were not related or affected the extension services rendered by the State Colleges in Southern Mindanao. This implies that the manpower is capable enough to conduct an extension activity which does not necessitate technical know – how in performing such tasks. Further, any faculty and non-teaching personnel could perform extension activities to the target beneficiaries.

Table 8. Manpower profile with **extension** services of the State Colleges.

Variables	Coefficient β	Standard Error	t-value	Probability
(Constant)	4.342	0.663	6.546	0.000
Age	0.026	0.020	1.305	0.198
Gender	-0.384	0.213	-1.801	0.078
Length of Service	-0.014	0.020	-0.698	0.488
Highest Degree Attended	-0.151	0.140	-1.076	0.287
R&E Conducted	0.026	0.030	0.876	0.385
Published Research Paper	-0.060	0.167	-0.359	0.721
Research Paper Presented	-0.050	0.088	-0.566	0.574
R&E Trainings	-0.030	0.109	-0.279	0.782

R2 = 0.20
$F = 1.589^{ns}$
Prob = 0.151

Manpower profile with Research and Extension Program of the State Colleges

The data in Table 9 manifest the influence of the manpower profile with research and extension program of the State College, which declare that among the manpower profile and extension programs of State Colleges only gender gives negative significant relationship having a t-value of -1.969* with a probability of =0.172. The overall influence of manpower to R & E programs has regression coefficient R^2 of 0.193 which means that only about 19.3% influence is due to manpower profile. The remaining 80.7% is attributed to other factors not included in the model; therefore, the null hypothesis was rejected.

The result implies that the male personnel who have greater number in this study negatively related to R & E program; while women who are few in number are equal or has better perspective on the achievement of R & E programs such as priorities and relevance, funding and resources, implementation, monitoring and evaluation, utilization of outputs, and publication and dissemination. However, they could not perform R and E because of their additional tasks performs at home.

The finding in this study although it is inconsistent to a taken literature from the study of Nicolas (2012), reflects that male and female are equal in their performance in research.

Table 9 Manpower Profile and the Research and Extension programs of the State Colleges.

Variables	Coefficient β	Standard Error	t-value	Probability
(Constant)	4.380	0.668	6.559	0.000
Age	0.024	0.020	1.190	0.240
Gender	-0.423	0.215	-1.969*	0.050
Length of Service	-0.016	0.020	-0.783	0.437
Highest Degree Attended	-0.143	0.141	-1.013	0.316
R&E Conducted	0.026	0.030	0.858	0.395
Published Research Paper	-0.084	0.168	-0.501	0.618
Research Paper Presented	-0.034	0.088	-0.384	0.703
R&E Trainings	0.002	0.110	0.022	0.982

R2 = 0.193
F = 1.526ns
Prob = 0.172

Research Practices and Extension Services of the State Colleges

The collated data in Table 10 indicated the relationship between research practices and extension services of State Colleges in Southern Mindanao, in terms of; priorities and relevance, funding and resources, implementation, monitoring and evaluation, utilization of outputs, and publication and dissemination that the relationship between research practices and extension services of State Colleges were found positively related with high significance. Thus, the hypothesis is rejected. This implies that as research activities are well facilitated in every institution, extension services will be also exercises.

Table 10 Research practices and Extension services.

Research Practices	R
Priorities and Relevance	0.797**
Funding and Resources	0.875**
Implementation	0.881**
Monitoring and Evaluation	0.873**
Utilization of Outputs	0.903**
Publication and Dissemination	0.832**

Research and the Sustainability of the State Colleges

The data representing the relationship of research with the sustainability of State Colleges in Southern Mindanao signify that the implementation of research with t-value of 2.992** and p-value of .004 indicate a highly significant influence of research with the sustainability of State Colleges. The coefficient of determination R^2=0.792 magnifies that 79.20% of the shared variations of predictor variables was accounted to the sustainability of State Colleges. With the computed F 33.55** which exceeded the probability value of -0.000 declares high degree of significance. The best predictor on the sustainability of State Colleges is the implementation of research.

This simply denotes that the sustainability of State Colleges had significantly obtained a high degree of implementation of research outputs thereby product of research that are patented elevate the quality of outputs and eventually increase the budgetary allocation of each state college.

It is in the area of extension program where implementations of research outputs of academic institutions have made significant difference in the community (Arroyo 2002).

Table 11 Research and Sustainability of the State Colleges.

Variables	Coefficient β	Standard Error	t-value	Probability
(Constant)	0.562	0.305	1.844	0.071
Priorities and Relevance	-0.011	0.151	-0.072	0.943
Funding and Resources	0.151	0.171	0.883	0.381
Implementation	0.549	0.183	2.992**	0.004
Monitoring and Evaluation	0.179	0.144	1.241	0.220
Utilization of Out Puts	-0.051	0.186	-0.276	0.784
Publication/Dissemination	0.038	0.125	0.306	0.761

R2 = 0.792
*F = 33.553***
Prob = 0.00

Extension and Sustainability of the State Colleges

Table 12 presents the influence of extension on sustainability of State Colleges in Southern Mindanao.

The data in Table 12 indicates the combined contribution of extension services with t-value of 1.478* and p-value of .045 which shows a highly significant influence on the sustainability of State Colleges. The coefficient of determination R2 = 0.727 extends that 72.7% of the shared variations of predictor variables was accounted to the sustainability of State Colleges. The remaining 27.3% would be clarified by the factors outside of the study context. The top predictor on sustainability of state colleges was monitoring and evaluation of extension.

Hence, the extension services significantly influenced the sustainability of State Colleges, thus the alternative hypothesis was accepted. This implies that the realization of sustainability of extension projects in state colleges is considerably obtained through sincere and proper monitoring and evaluation. In the case of CFCST the office of the extension services extended their expertise in extension activities on the majority of the barangay in Arakan Valley Complex.

The result can be supported by the literature taken from the paper of Bidad and Campiseño (2010) which says that in spite of the problems encountered by the extension workers/faculty yet they are sincere enough in performing their responsibility as agent of change as manifested by their enthusiasm to share their expertise to the clienteles.

Table 12 Extension and Sustainability of the State Colleges.

Variables	Coefficient β	Standard Error	t-value	Probability
Constant	0.367	0.367	1.999	0.002
Priorities and Relevance	0.116	0.196	0.593	0.556
Planning	-0.022	0.217	-0.101	0.920
Implementation	0.226	0.203	1.117	0.069
Monitoring and Evaluation	0.332	0.224	1.478*	0.045
Funding and Resources	0.098	0.184	0.529	0.599
Community Involvement	0.121	0.147	0.821	0.416

R2 = 0.727
*F = 23.529***
Prob = 0.000

Research and Extension program and Sustainability in the State Colleges

Table 13 presents the influence of manpower profile with research and extension programs of the State Colleges.

The table revealed that the research utilization of outputs with t-value of 2.491* and p-value of .016 shows a highly significant influence of manpower to research and extension programs of State Colleges. The coefficient of determination R2 = 0.858 heightens that 85.8% of the shared variation of predictor variables was accounted to the sustainability of the State Colleges. The remaining 14.2% can be explained by the factors outside of the study context. The best predictor on the sustainability of State Colleges based variable selection procedure is the utilization of outputs of the research.

This simply expresses that the achievement of the sustainability of the State Colleges can be highly attained through the utilization of outputs of the research. Therefore, the manpower profile significantly credit to the research and extension, the null hypothesis was rejected. This manifests the utilization of the Taclobo Tour as one of the flagship programs of Davao del Norte State College

The findings conform to the study conducted by Alim (2011) that the extent of implementation of the research output utilization in faculty development, curriculum development and instruction improvement and student assistance was implemented in SUC's region XII.

Table 13 Research and Extension programs and Sustainability of the State Colleges.

Variables	Coefficient B	Standard Error	t - value	Probability
(Constant)	0.728	0.240	3.037	0.004
Priorities and Relevance	0.040	0.119	0.337	0.738
Funding and Resources	0.256	0.134	1.906	0.062
Implementation	0.037	0.144	0.258	0.798
Monitoring and Evaluation	0.156	0.114	1.369	0.177
Utilization of Outputs	0.365	0.147	2.491*	0.016
Publication and Dissemination	0.009	0.098	0.095	0.925

$R^2 = 0.858$
*$F = 53.478$***
Prob = 0.000

CONCLUSION

Based on the findings of the study, it is established that most of the respondents were in the age bracket 38-46 years old, male, 5 years in service, bachelor's degree with master's unit, average research and extension conducted of 2 researches, 1 for published research paper, research paper presented, and R & E related trainings.

On the research practices it was determined that oftentimes, the State Colleges had given consideration on priorities and relevance, funding and resources, implementation, monitoring and evaluation, utilization of outputs, and publication/dissemination. Likewise, extension services were found out that oftentimes the State Colleges considered services in priorities and relevance, planning, implementation, funding and resources, and community involvement and participation.

Research and Extension were found highly sustainable in terms of economic viability, cultural acceptability, ecological friendliness, social equity, and technological friendliness.

The research and extension had impact in utilization of outputs, publication/dissemination, skills developed, attitudes developed, and economic aspect.

As to the relationship of manpower profile with research, there is a highly degree of significant relationship between manpower profile with the research and gender found to be the best predictor. For the relationship of manpower profile with research and extension, there is a greatly degree of significant relationship between manpower profile with research and extension, the gender was found out the finest forecaster. On the relationship of research with extension, there is extremely mark of significant relationship between research with extension in priorities and relevance, funding and Resources, implementation, monitoring and evaluation, utilization of outputs, and publication/dissemination. In the relationship of manpower profile with research and extension, there is really a point of significant relationship between manpower profile with research and extension. As to the influence of research with sustainability, there is highly mark of influence between research with sustainability level. The greatest forecaster was the implementation of the research outputs. For the influence of extension with sustainability, there is extremely degree of influence between extension services with the sustainability level of State Colleges in Southern Mindanao.

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