



CARAGA STATE UNIVERSITY
Competence, Service, and Uprightness

OFFICE OF THE VICE PRESIDENT FOR RESEARCH, DEVELOPMENT, INNOVATION, & EXTENSION



2024

RESEARCH AND DEVELOPMENT INNOVATION AND EXTENSION

Annual Report



Caraga State University, Ampayon Butuan City



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ovprdie.carsu.edu.ph/

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Unit Profile

The Office of the Vice President for Research and Development, Innovation and Extension (OVPRDIE) is responsible for recommending to the University President policies, strategies, guidelines, and budgetary allocations, among others pertaining to research, innovation and extension. Additionally, the OVPRDIE oversees the planning, execution, and evaluation of all programs in the domains of research, innovation, extension, and commercialization, including essential collaborations with institutional partners.

Mission

Generation of knowledge, technologies, and innovations supporting the lasting inclusive economic growth, peace, and disaster resiliency in the Caraga Region.

Vision

CSU as 'The Research and Innovation Hub of Caraga' supporting sensitive, environment-friendly, ecologically sound, and inclusive economic growth in the area.

Core Values

Competence,
Service,
Uprightness

Key Functions & Contributions



Advances research & development, innovation and extension at Caraga State University, a leading SUC institution in the country (SUC Level IV);



Provides strategic vision, leadership, and investments for the university's entire research, innovation and extension enterprise;



Supports the university's Research & Development, and Innovation (RDI) Centers, Extension Services & Innovation units and essential core RDIE facilities;



Serves faculty, students, and staff throughout the process of discovery and creative activity;



Assists faculty researchers identify funding opportunities that have high potential to attract external funding and catalyze community impact



FUNCTIONAL STRUCTURE

Fiscal Year 2024-present

Office of the Vice President for Research & Development, Innovation, and Extension



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09177078764, 09177078713,
09177078769

References:

BOR Resolution No. 85-16, s. 2024

OP Memorandum Order No. 216, s. 2024

VISION

A socially-engaged digital, innovation, and entrepreneurial university
excelling globally in science, engineering, and the arts by 2028.

MISSION

As a transformative university, CSU is a responsible steward of
problem-solvers and value creators who are driven to create a
sustainable future for the region, the nation, and beyond.

CORE VALUES

Competence, Service, and Uprightness



Quality Objectives of the Office

The OVPRIE at Caraga State University is committed to advancing research, building partnerships, fostering professional growth, and supporting community development through targeted, measurable objectives. Aligned with the university's mission, these goals enhance faculty engagement, research output, and stakeholder collaboration, creating a foundation for continuous improvement and impactful contributions to education, research, and community service.



Faculty Engagement in Research

Ensure that 80% of Graduate School faculty are actively engaged in research annually.



Research Output Completion

Complete 40 research outputs by the end of the fiscal year to support the institution's commitment to innovation and knowledge dissemination.



Publication of Research Outputs

Publish at least forty percent (40%) research outputs in Scopus-indexed journals and conferences annually



Sustaining Active Partnerships

Sustain nine (9) active partnerships through Memorandum of Agreement (MOA) / Memorandum of Understanding (MOU) agreements to enhance collaborative research and extension programs.



Training Programs

Train 1,500 individuals supporting skill development and professional growth for CSU stakeholders annually.



Extension Program Support

Organize and support at least nine (9) extension programs each year aimed at community development and capacity building.



Intellectual Property Protection

Achieve a target of at least six (6) new patents or intellectual property applications annually, focusing on research outputs with commercialization potential.



Enhancing Research Visibility through University-Led Journal Issuance

Facilitate the publication and dissemination of research findings by supporting the issuance of at least one (1) university-led academic journals annually, ensuring high-quality, peer-reviewed content that enhances the visibility and impact of CSU's research contributions.



Technology Commercialization

Secure at least one commercialization outcome (technology transfer and commercialization through licensing agreements, MOU/MOA, industry partnerships, or startup launches) each year.

These objectives encapsulate the OVPRDIE's pursuit of excellence across research, partnerships, training, and community engagement, all integral to advancing the university's overarching mission.

INSTITUTIONAL PERFORMANCE USING THE BALANCED SCORECARD

With the guidance of the OVPRDIE, Caraga State University has made progress in research, innovation, and community programs. The office's investments have led to increased research, successful technology transfers, and a positive impact on the community. These achievements have helped enhance the university's reputation and contribute to societal progress.

In this document, we report the highlights of accomplishments for the Fiscal Year 2024, using the Institutional Balanced Scorecard.



Institutional Performance Using the BALANCED SCORECARD REPORT

- The Office of the Vice President for Research, Development, Innovation, and Extension (OVPRDIE) has strategically focused on **building community-focused solutions to foster stronger collaborations, strengthened academic mobility, fostering social responsibility through knowledge sharing and collaborative research**, resulting in tangible progress across several key areas.

36

(No. of active partnerships with LGUs, industries, NGOs, NGAs, SMEs, and other stakeholders as a result of extension activities.)

A total of **36** active partnerships were established over the last three quarters, demonstrating a consistent effort to expand engagement: 3 partnerships were initiated in Q1, followed by 10 in Q2, a significant increase to 15 in Q3, and 8 in Q4, indicating a sustained commitment throughout the year.

4

(No. of skill development and training programs initiated for regional businesses, especially FAME MSMEs, to enhance their capabilities and competitiveness.)

Extension Units played a crucial role in skills and development training, delivering **four (4)** impactful programs. These included the **Financial Literacy program**, which empowers community members with essential financial management skills; **training on ruminant feeding**, aimed at improving livestock health and productivity; **Vegetable Seedling Production** training, enhancing agricultural practices; and specialized **training in abaca production and disease management**, vital for supporting local industries

15

(No. of extension programs organized and supported consistent with the SUC's mandated and priority programs.)

As of December 31, 2024, fifteen **(15)** extension programs were actively being implemented, distributed as follows: 4 in Q1, 6 in Q2, 1 in Q3, and 4 in Quarter 4.

12,116.25

No. of trainees weighted by the length of training

The Extension Programs have collectively reached **12,116.25** trainees, showcasing the breadth and depth of the OVPRDIE's community engagement. This number exceeds the target by an impressive **99%**, highlighting the effectiveness of the training initiatives and suggesting enhanced beneficiary satisfaction with the program's content and delivery.

Institutional Performance Using the BALANCED SCORECARD REPORT

27

(No. of active international partnerships, collaborations, and engagements in research, faculty development, etc.)

In addition to local efforts, the OVPRDIE has been proactive in establishing international connections, resulting in **27** international partnerships as of December 31, 2024. These collaborations encompass diverse areas such as joint research projects, faculty development opportunities, and various other strategic initiatives, fostering a global perspective and enhancing the institution's research capabilities.

3

(No. of extension project and training program with impact assessment 3 years after its implementation.)

To ensure the effectiveness and long-term impact of these initiatives, **three (3)** projects and training programs are currently undergoing thorough impact assessments. One notable project is the Outcomes-Based Instructional Materials (OBIMS) project, which aims to enhance the quality and relevance of instructional materials used in educational settings.

22.07%

(Percentage of plantilla faculty involved in extension activities)

Faculty engagement is a cornerstone of the OVPRDIE's efforts, with a total of 66 faculty members actively participating in extension activities. This represents approximately **22.07%** of the total 299 faculty members, demonstrating a significant level of commitment to community outreach and engagement across the institution.

- Driven by the strategic objective of **strengthened academic mobility**, graduate faculty have shown exceptional engagement: over the past three years, 78 out of 89 faculty members (**87.64%**) actively participated in research, demonstrating a strong commitment to scholarly advancement and significantly contributing to the university's research output.

87.64%

actively participated in research activities over the past three years, demonstrating a robust commitment to scholarly advancement.

Institutional Performance Using the BALANCED SCORECARD REPORT

- With a strategic commitment to **social responsibility realized through knowledge sharing and collaborative research**, the university is delivering impactful research outcomes.

6

(No. of implemented research projects/ programs pertaining to agri-food systems)

The university has made substantial progress in its research endeavors as of December 2024. Key initiatives include the implementation of four research projects: focusing on food innovation and **product development, advancing sago technology, establishing a demonstration farm for coffee fertilization techniques** (as part of the Caraga Region Coffee Production Build-up through S&T based interventions through RISE-ADN), enhancing **vegetables and fruit processing, creating an Agri-Aqua Business Hub**, and **combating virus diseases in abaca production**.

74.85%

(Percentage of Research outputs published in internationally refereed or CHED-recognized journals within the year)

Scholarly output has also been strong, with more than **131** paper publications recorded over the past year (achieving 74.85%), with a significant increase to 81 publications in the fourth quarter, demonstrating commitment to research, outreach, and teaching.

100

(No. of research outputs completed within the year)

100 research outputs were completed during the year. These outputs include paper presentations, publications, and output utilized by other beneficiaries.

- In pursuit of the strategic objective – **viable alternative financing for shared costs, benefits, and risks** – the university reports strong financial management as of December 2024. The institution secured **107 million** in project funds over the last four quarters, from both GAA and external sources. High utilization rates were achieved: **98.75% for the RAF budget** and **96.15% for the FLR-HEIRIP program**. As for the IGF, the average budget utilization rate across both sectors is **91.58%**, reflecting effective financial stewardship and commitment to organizational goals this fiscal year.

Institutional Performance Using the BALANCED SCORECARD REPORT

- Under the **Knowledge, Co-creation, and Technopreneurship**, and guided by the strategic objectives of **intensified CSU-Industry co-innovation networks**, a **robust incubation program for aspiring technopreneurs**, a **culture of co-creation to address societal needs**, and **revenue diversification through technology commercialization**, the OVPRDIE reports the following milestones as of December 2024.

14

(No. of research outputs in the last three years utilized by the industry or by other beneficiaries)

Documented **fourteen (14)** significant research outputs effectively utilized by various industries and beneficiaries. These include information systems, solar electrification, ICT infrastructure, real property tax mapping, sago processing technology, technology on E-NGP, research results for local conservation projects, instructional materials for action research, cacao roasting technology, and Geographic Information Systems for Agricultural and Fisheries Machinery & Infrastructure (GeoAgri). This aligns with the university's role in supporting innovation activities

BOR Approved CSU Spin-Off Policy: The spin-off policy is crucial for the incubation process. The initial proposal in 2020 was disapproved, with revisions underway, following presentation at the Research and Development Innovation (RDI) Centers and to the Admin and Academic Council of the University.

BOR Approved Research Manual and Presence of Ethics Board: Crucial for the integrity of research and entrepreneurial endeavors. The manual and ethics board are under development and will be presented to the Administrative and Academic Councils, followed by the Board of Regents.

5

(No. of startups that have successfully completed the incubation program)

In collaboration with the Department of Trade and Industry (DTI), we have successfully completed several projects, including **ScrapCycle**, **SnapScout**, and **AgriSell**. Complementing these DTI partnerships, we've also independently completed projects such as **ParaGo**, **MentalBoost**, and **HealthSync**. Currently, we are advancing ongoing projects, PantoyGames and TacoFaco, toward DTI registration

Institutional Performance Using the BALANCED SCORECARD REPORT

4

(Number of research creative outputs registered as intellectual property rights and utilized for commercial and industrial purposes)

The following research outputs are associated with intellectual property (IP) agreements, including Memoranda of Agreement (MOA), Technology Licensing Agreements (TLA), extensions, Memoranda of Understanding (MOU), and sales of products with IP: **MapX, Laboratory Workbook in Genetics, Laboratory Workbook in Developmental Biology, Participation, and Teaching Assistantship**

14

Number of research creative outputs registered as intellectual property right but not utilized commercially

Inventoried intellectual property items include: **a device for extracting starch from starch-producing crops, a device for drying agricultural crops, an insect trap, a device for molding cocoa mass into tablea, a herb fruit blend, and a guide to Philippine medicinal plants utilized by the Butuanon community.** There are also eight (8) patent applications applied last December 2024

5

No. of innovations, patents, or intellectual property generated by the incubated startups

Current working products from incubated startups include **ScrapCycle, SnapScout, STELLA.ai, BlackGold Nutribar, and Bayanibblue.**

12

No. of students, researchers, and teams participating in the entrepreneurship competitions and challenges.

Student and researcher engagement is fostered through participation in entrepreneurship competitions and challenges, with teams representing **Bayanibblue Aquaculture (3 teams), STELLA.ai (3 teams), AgriSell (3 teams), and BlackGold Nutribar (3 teams)** participating in the 4th GAME competition.

Institutional Performance Using the BALANCED SCORECARD REPORT

70%

(Percentage of plantilla faculty engaged in externally funded research projects within the year)

Faculty Engagement in Research: **70%** of faculty members participated in externally funded research projects.

15%

(Percentage of plantilla faculty engaged in internally funded research projects)

Currently, only **15%** of our faculty members are involved in internally funded research projects. This lower level of engagement can be attributed to the limited funding available through the General Appropriations Act (GAA)

98.63%

(Percentage of articles published in journals indexed in Web of Science (SSI, SSCI, AHCI), SCOPUS in the last three years that have been cited one or more times)

A high citation rate of **98.63%** has been achieved, with 288 out of 292 articles published in journals indexed in Web of Science (SSI, SSCI, AHCI) and SCOPUS in the last three years receiving one or more citations as of December 31, 2024.

1.2M

(Revenue generated through the commercialization of research outcomes)

Revenue Generation: Revenue generated from developed intellectual property (IP), including information management systems, technologies, and other related innovations, reached **Php 1,272,049.18** as of July 2024, demonstrating progress in technology commercialization

Institutional Performance: TARGET VS ACCOMPLISHMENTS

TARGET	Building community- focused solutions to strengthen collaborations	ACCOMPLISHMENT
9	No. of active partnerships with LGUs, industries, NGOs, NGAs, SMEs, and other stakeholders as a result of extension activities	36
4	No. of skill development and training programs initiated for regional businesses, especially FAME MSMEs, to enhance their capabilities and competitiveness.	4
10	No. of extension programs organized and supported consistent with the SUC's mandated and priority programs	12
1500	No. of trainees weighted by the length of training	12,116.25
70%	Percentage of beneficiaries who rate the training course/s and advisory services as satisfactory or higher in terms of quality and relevance	99%
11	No. of active international partnerships, collaborations, and engagements in research, faculty development, etc.	27
11	No. of extension project and training program with impact assessment 3 years after its implementation.	3
10%	Percentage of plantilla faculty involved in extension activities	22.07%

Institutional Performance: TARGET VS ACCOMPLISHMENTS

TARGET	Strengthened academic mobility program	ACCOMPLISHMENT
60%	Percentage of GS faculty engaged in research work actively pursuing in the last three (3) years	87.64%
4	Commitment to social responsibility through knowledge sharing and collaborative research No. of implemented research projects/ programs pertaining to agri-food systems	6
40%	Percentage of Research outputs published in internationally refereed or CHED-recognized journals within the year	74.85%
40	No. of research outputs completed within the year	100
25M	Viable alternative financing for shared costs, benefits, and risks Total research funding obtained from public and private sector partners Increase revenue from Income-Generated Projects (IGPs)	101M
85%	Utilization rate of allocated funds for research and development (GAA)	98.75%
85%	Utilization rate of Internally generated fund (Fund 164 and 161)	91.58%

Institutional Performance: TARGET VS ACCOMPLISHMENTS

TARGET	Intensified CSU-Industry co-innovation networks	ACCOMPLISHMENT
9	No. of research outputs in the last three years utilized by the industry or by other beneficiaries	14
1	Robust incubation program for aspiring technopreneurs BOR Approved CSU Spin-Off Policy	-
1	BOR approved Research Manual and presence of ethics board	-
5	No. of startups that have successfully completed the incubation program	5
10	Number of research creative outputs registered as intellectual property rights and utilized for commercial and industrial purposes	4
10	Number of research creative outputs registered as intellectual property right but not utilized commercially	14
5	No. of innovations, patents, or intellectual property generated by the incubated startups	5

Institutional Performance: TARGET VS ACCOMPLISHMENTS

TARGET	Culture of co-creation to address societal needs	ACCOMPLISHMENT
10	No. of students, researchers, and teams participating in the entrepreneurship competitions and challenges.	12
300	No. of articles by plantilla faculty published in journals indexed in Web of Science (SCI, SSCI, AHCI) with citations.	162
5%	Percentage of plantilla faculty engaged in internally funded research projects	15%
40%	Percentage of plantilla faculty engaged in externally funded research projects within the year	70%
10%	Percentage of articles published in journals indexed in Web of Science (SSI, SSCI, AHCI), SCOPUS in the last three years that have been cited one or more times	98.63%
500K	Revenue diversification through technology commercialization Revenue generated through the commercialization of research outcomes	1.2M

Physical Performance Report (BAR 1)

TARGET	Performance Indicator	ACCOMPLISHMENT
50%	Actively pursuing in the last three (3) years (investigative research, basic and applied scientific research, policy research, social science research)	87.64%
9	Number of research outputs in the last three years utilized by the industry or by other beneficiaries	14
40	Number of research outputs completed within the year	100
40%	Percentage of research outputs published in internationally-refereed or CHED recognized journal within the year	74.85%
9	Number of active partnerships with LGUs, industries, NGOs, NGAs, SMEs, and other stakeholders as a result of extension activities	36
1500	Number of trainees weighted by the length of training	12,116.25
10	Number of extension programs organized and supported consistent with the SUC's mandated and priority programs	12
70%	Percentage of beneficiaries who rate the training course/s and advisory services as satisfactory or higher in terms of quality and relevance	99.00%

Summary of Findings and Recommendations (For Physical Performance)

A ADVANCED EDUCATION SERVICES

As of December 31, 2024, the Advanced Education Services has reported that seventy-eight (78) faculty members have actively engaged in research work over the past three years. This represents approximately 87.64% of the total 89 faculty members in graduate school (see Annex 1). Figure 1 reflects the number of graduate school faculty per college actively engaged in research and extension works from 2022-2024. This high level of engagement reflects a strong commitment to research among the faculty, aligning well with the performance indicators set forth in the General Appropriations Act and the Balanced Scorecard for evaluating office performance.

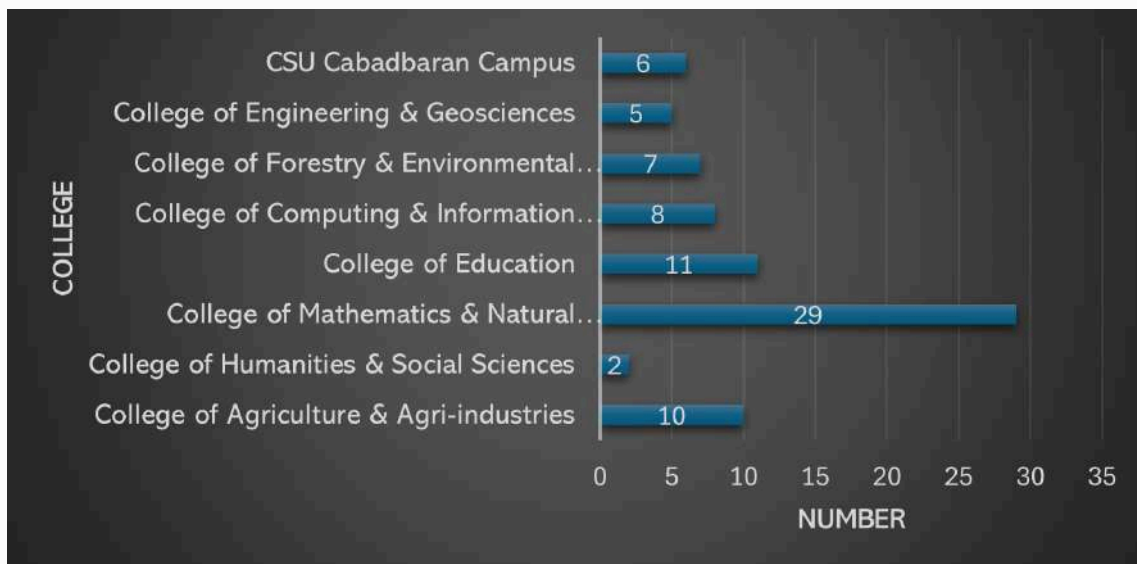


Figure 1. Number of graduate school faculty per college actively engaged in research and extension works from 2022-2024.

Figure 2 shows a profile of the graduate school faculty reveals significant engagement in advanced studies and research productivity. Of the 78 faculty members, 14 (15.73%) are currently pursuing advanced degrees. A significant majority, 59 faculty members (66.29%), have actively engaged in research within the past three years, demonstrating a strong commitment to scholarly pursuits. Furthermore, two faculty members (2.25%) have successfully developed technologies with potential for commercialization or livelihood improvement. Finally, the research of three faculty members (3.37%) has translated into impactful extension programs, demonstrating a commitment to applying knowledge for community benefit.

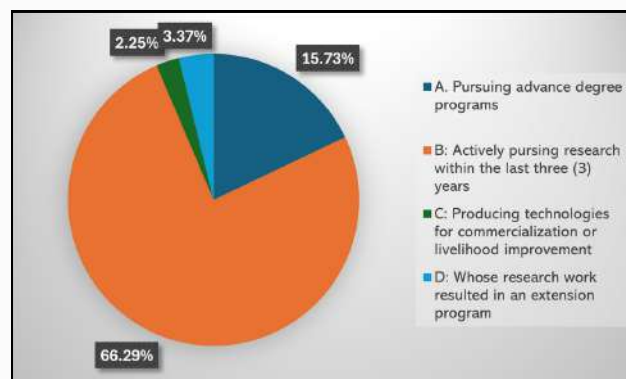


Figure 2. Percentage of graduate school faculty engaged in advanced studies and research productivity from 2022-2024.

Summary of Findings and Recommendations (For Physical Performance)

R

RESEARCH SERVICES

The establishment and promotion of collaboration between industry and academic partners, as well as the alignment of research with industry needs and the availability of funding for research initiatives, are essential for enhancing the impact and applicability of research outputs. As of December 31, 2024, the office has reported a total of sixteen (16) research outputs that are actively utilized by industry stakeholders or other beneficiaries, demonstrating a tangible connection between academic research and real-world applications.

Table 1. List of technologies/research output utilized by industry and other stakeholders.

Research Output	Description	Benefitting Industry/Community
Tax Mapping and Assessment of Real Property	A tax mapping services powered by web-based Geographic Information Systems (GIS). It digitally transforms property boundaries into interactive maps, using geospatial technology to overlay maps for improved property assessment and valuation.	Local Government of Mambajao, Camiguin
Sago Processing Technology	A technology set to improve efficiency and sustainability in sago processing, providing a much-needed solution to local communities and industries.	Kaba-ang Livelihood Association
Geographic Information Systems for Agricultural and Fisheries Machinery & Infrastructure (GeoAgri)	The Geographic Information System for Agricultural and Fisheries Machinery and Infrastructure, also called GEOAGRI, was conceptualized to monitor all the agricultural and fisheries infrastructure projects in the Philippines and eliminate the possibility of multi-agency funding to a certain infrastructure construction project. It is an interactive web mapping application that displays information about agricultural and fisheries infrastructure projects and agricultural and fisheries machinery in the entire country.	DA-Bureau of Agricultural and Fisheries Engineering (BAFE)
Instructional Materials on Action Research Implementation	Instructional Materials on Action Research Implementation	Department of Education – Agusan del Norte
Policy on the Local Conservation Area of Sumile	Policy on the Local Conservation Area of Sumile	Butuan City Government
Tablea Molder	PATENT NO. 1/2021/050622 The present invention basically includes a machine for the molding of unsweetened cocoa mass into tablea. The invention provides a solution to mold tablea with a capacity of 842 pcs./hr and a recovery efficiency of 88.17%.	SRS Industrial Trading

Summary of Findings and Recommendations (For Physical Performance)

Research Output	Description	Benefitting Industry/Community
Kaong Meat Extractor	PATENT NO. 1/2019/050250 The present invention relates to a device for extracting a fruit or vegetable's meat, particularly a Kaong (Arenga pinnata). As a substitute for the inconvenient traditional standards, this machine's average capacity could process 16 pieces per round or 539 pieces of Kaong fruit per hour. It has a cutting efficiency and extraction efficiency of 92.59% and 91.61%, respectively.	SRS Industrial Trading
Snail Collecting Device	Utility Model Reg. No: 2/2021/050382 A mechanical snail collecting device for the wetland rice field. This snail-collecting device is attached to a hand tractor that serves as an implement. This Snail Collecting Device aims to control the massive occurrence of Golden Apple Snail (GAS) in the lowland paddy and minimize rice production yield loss. It has a field capacity of 0.244 ha/hr, and a collecting efficiency of 27% higher than the handpicking technique, which is only 9.13%.	SRS Industrial Trading
Sago Starch Extractor	PATENT NO. 1/2020/050506 The present invention basically includes a machine for the extraction of sago starch. The machine comprises of a crushing assembly and separation assembly. The present invention provides a solution to extract sago starch with a capacity of 20.28 kg/hour and a starch recovery efficiency of 75%.	SRS Industrial Trading
Copra Dryer	PATENT NO. 1/2021/050620 The present invention relates to a device for drying agricultural crops, particularly a coconut meat to produced copra. The copra dryer is designed for coconut farmers and processors aiming to produce high- quality copra for the coconut oil and related industries. This technology supports the coconut farming industry, offering a solution to improve the quality and market value of copra, thus contributing to farmers' incomes and the competitiveness of Philippine coconut products in the global market.	SRS Industrial Trading
Insect Trap	PATENT NO. 1/2021/050406 An innovative automated insect pest management system designed for rice fields. This technology provides significant advancements: 1. Automated trapping and collection of insects a. minimize the usage and lessen the expenses of farmers on pesticides but as well as protect the farmers, consumers, and the environment from its harmful effects. 2. Stand-alone photovoltaic system - for a cheaper power supply in the long run and can last a lifetime with little maintenance.	SRS Industrial Trading

Summary of Findings and Recommendations

(For Physical Performance)

Research Output	Description	Benefitting Industry/Community
Pupil Reading Instructional Materials	Instructional Materials developed during the implementation of Reading Enhancement and Development Initiatives in the New Normal for Grade-schoolers	Department of Education-Agusan del Norte
DENR-NGP Information Systems	Functionality of the DENR-NGP Information Systems	Department of Environment & Natural Resources-Caraga Region
Solar Electrification	Electrification of Bacuag, Surigao del Norte	Local Government of Bacuag, Surigao del Norte
Coconut Product Development	Development of innovative food products derived from coconut, showcasing the center's dedication to leveraging local resources and advancing food technology in Caraga	Tagasaka Coconut Farmers Agriculture Cooperative
Mine Virtual Reality Application	The technology can create realistic simulations of hazardous mining environments, enabling personnel practice emergency responses and safety procedures without exposure to actual risks.	APEX Mining Company

In addition to the successful use of these products, the total number of research outputs completed **this year has exceeded the target of 100**. This achievement reflects a strong commitment to producing high-quality work that meets academic standards and addresses societal needs. These outputs include paper presentations, utilized research, and published papers, showcasing meaningful contributions to the field.

Summary of Findings and Recommendations (For Physical Performance)

R

RESEARCH SERVICES

In terms of publication metrics, a total of 131 papers (see Annex 2) have been published in internationally refereed or CHED-recognized journals over the past four quarters. This achievement accounts for 74.85% of the university's annual publication target, reflecting a strong commitment to research dissemination. Notably, 81 papers were published during the fourth quarter alone, highlighting the faculty's dedication to sharing their research findings with a broader audience.

As of December 27, 2024, a total of 253 articles have been accepted for publication, with 131 of these already published and out of it, 122 are already indexed. We anticipate further increases in this number in the coming year. This accomplishment represents 87% of our target of 300 articles, demonstrating significant progress and a proactive approach to enhancing our research output.

In general, these developments emphasize the university's commitment to advancing research that meets rigorous academic standards and addresses pressing industry challenges, thereby contributing to societal advancement and economic development.

Summary of Findings and Recommendations (For Physical Performance)

T

TECHNICAL ADVISORY SERVICES

Over the past four quarters, the office has successfully established a total of **thirty-six (36)** active partnerships, reflecting a robust commitment to collaborative initiatives. The distribution of these partnerships is as follows: 3 partnerships in the first quarter (Q1), 10 partnerships in the second quarter (Q2), 15 partnerships in the third quarter (Q3), and 8 partnerships in Q4 (see Annex 3).

As of December 31, 2024, the number of trainees has reached a notable **12,116.25** which indicates a significant increase in the number of training sessions and workshops conducted. Furthermore, the office currently offers a **total of twelve(12) extension programs**, distributed as follows: four (4) programs in Q1, six (6) programs in Q2, one (1) program in Q3, and one (1) program in Q4. This expansion in extension offerings highlights the university's ongoing efforts to address community needs and enhance outreach.

In general, there has been a notable increase of 29% in performance compared to the established target as of December 31, 2024. This upward trend signifies not only improved outreach and engagement but also enhanced satisfaction among beneficiaries, reflecting the effectiveness of the university's extension services.

The performance assessment of the Office of the Vice President for Research, Development, and Innovation (OVRDIE) highlights significant progress across various domains. High faculty engagement in research, the establishment of impactful partnerships with industry stakeholders, and the successful execution of training programs all demonstrate the university's commitment to advancing knowledge and addressing community needs.

As OVRDIE continues to build on these accomplishments, it is essential to maintain momentum by promoting collaborative initiatives and enhancing outreach efforts. The positive trends in research output and beneficiary satisfaction indicate a strong foundation for future growth. By aligning its objectives with both academic rigor and societal relevance, OVRDIE is well-positioned to make meaningful contributions to knowledge advancement and community improvement.

Looking ahead, the office is eager to strengthen these initiatives in the coming quarters, ensuring that its research and extension services remain responsive to the evolving needs of society.

Financial Performance Report

The Office of the Vice President for Research and Development, Innovation, and Extension (OVPRDIE) is committed to achieving a budget utilization target of 85% for its operations, funded through both Regular Agency and Internal-Generated Funds, as outlined in the Balanced Scorecard.

For fiscal year 2024, the total fund allocation from the General Appropriations Act (GAA), including the IGF, is **₱7,660,936.00**.

92%

RAF-Research Program

Per the Statement of Allotment, Obligations, and Balances (SAOB) released by the Budget Office on December 25, 2024, the budget utilization for the RAF Research Program Fund reflects strong performance. The total approved budget for the year was ₱1,940,000, with actual utilization reaching ₱1,781,096.88, resulting in an impressive overall utilization rate of 92%.

85%

RAF-Extension Program

As of December 25, 2024, the total budget utilization for the RAF-Extension Program stands at ₱478,439.08 from a budget allocation of ₱561,000.00, reflecting an overall utilization rate of 85%.

93.17%

IGF-Research Office Operations

The budget utilization for IGF-Research Operations for the fiscal year had an approved budget of ₱674,936.00. The cumulative utilization across all four quarters totaled ₱628,859.68, resulting in an overall utilization rate of 93.17%.

90%

IGF-Extension Office Operations

For IGF-Extension Services, with a total approved budget of ₱350,000.00 for the year, cumulative expenditures reached ₱314,083.70, leading to a commendable overall utilization rate of 90%.

92.45%

CSUCC-RAF Research

The RAF Research has an approved budget of Php 885,000.00, with cumulative utilization totaling Php 818,183.20, resulting in an impressive utilization rate of 92.45%.

63%

CSUCC - RAF Extension

The RAF Extension has an approved budget of Php 250,000.00, but its cumulative expenditures have only reached Php 156,650.00, leading to a utilization rate of just 63%.

96%

FLR-HEIRIP

For the FLR-Higher Education Research and Innovation Project (FLR-HEIRIP), the total approved allotment for 2023 was ₱3,000,000.00. Actual utilization amounted to ₱1,719,352.83, yielding a utilization rate of 57%. In 2024, ₱1,280,647.17 was carried over from 2023, with utilization at ₱1,231,359.75, achieving an outstanding utilization rate of 96%.

98.75%

Overall Budget Utilization for RAF

As of December 25, 2024, the office has effectively utilized 98.75% of the budget allocated for RAF.

91.58%

Overall Budget Utilization for IGF

The average budget utilization rate for both sectors is 91.58%, highlighting strong financial management and dedication to meeting organizational goals this fiscal year.

STATUS OF LOCALLY FUNDED PROJECTS

*In FY 2024, Caraga State University (CSU) received **Php 4,815,000.00** from the Department of Budget and Management (DBM) to support its Research and Extension projects. This funding is allocated to three research projects (Php 4,141,000.00) and two extension projects (Php 674,000.00). This investment underscores the DBM's support for research and development efforts in State Universities and Colleges (SUCs) aimed at elevating the socio-economic status of communities.*



CARAGA
STATE UNIVERSITY
PHILIPPINES

Ground-Up Progress: How Locally Funded Projects in Caraga State University are Driving SDG Achievement

These locally funded projects in Caraga State University demonstrate a strong commitment to advancing the Sustainable Development Goals (SDGs), addressing critical social, economic, and environmental challenges through targeted initiatives.



The ***Development of a Community-Based Psychosocial Support Program for Rural Communities in Caraga*** aligns directly with **SDG 3 (Good Health and Well-being)** by promoting mental health and providing psychosocial support to vulnerable populations. This initiative also contributes to **SDG 5 (Gender Equality)** by addressing the specific mental health needs of women and girls, particularly those affected by crises such as violence or displacement. Programs like these are vital in fostering inclusive health systems, as seen in efforts by institutions like Caraga State University (CSU), which emphasize community-based mental health care and awareness campaigns to uplift rural communities.



The ***Communication Pathways of Falcata Adoption Among Farmers in Agusan del Sur, Philippines*** supports **SDG 8 (Decent Work and Economic Growth)** by promoting sustainable forestry practices that enhance farmers' livelihoods. By encouraging the adoption of Falcata trees, this project not only increases income opportunities but also contributes to long-term economic resilience. Additionally, it aligns with **SDG 17 (Partnerships for the Goals)** by fostering collaboration among farmers, local governments, and agricultural stakeholders to share knowledge, resources, and best practices. Such partnerships are crucial for scaling sustainable economic models in rural areas.

Ground-Up Progress: How Locally Funded Projects in Caraga State University are Driving SDG Achievement



The ***Biodiversity Assessment of the Proposed Local Conservation Area in Barangay Sumile, Butuan City*** directly addresses **SDG 15 (Life on Land)** by evaluating and preserving biodiversity in a critical local ecosystem. This project indirectly supports **SDG 13 (Climate Action)** as biodiversity conservation plays a key role in mitigating climate change impacts by maintaining ecological balance and protecting carbon sinks. Efforts like these are integral to regional strategies such as the Caraga Regional Development Plan (RDP) 2023–2028, which emphasizes environmental sustainability as a cornerstone of development.



MUGNA CARAGA: Mentoring and Upskilling Groups towards Navigating their Action-response CEd Extension Project significantly contributes to **SDG 4 (Quality Education)** by providing mentoring and skills training to empower local groups, specifically aiming to capacitate the research skills of select DepEd teachers to conduct action research and develop relevant instructional materials. This initiative not only enhances community capacity for implementing development projects but also fosters collaboration among stakeholders, aligning it with **SDG 17 (Partnerships for the Goals)**.



Finally, ***HITSAS-TULAY (Tuyhakaw sa Kabatan-onang Lumad)*** focuses on improving educational access for indigenous Lumad youth, directly contributing to **SDG 4 (Quality Education)**. By addressing barriers to education faced by marginalized communities, this project also advances **SDG 10 (Reduced Inequalities)** by promoting inclusivity and ensuring that indigenous populations have equitable opportunities for growth and development. Such initiatives are critical in regions like Caraga, where indigenous groups often face systemic challenges that hinder their full participation in society.

The following sections of this report summarizes the progress of the locally funded research and extension projects, as implemented by project leaders from across various colleges.

Development of a Community-Based Psychosocial Support Program for Rural Communities in Caraga

Loressa Joy D. Paguta, MA, Rpm (Project Leader); Dr. Rustum A. Salvaña, RGC & Jonne Pearl Q. Alas, Rpm (Project Staff); Vharga Robethjen Quibod (Project Assistant)

Mental health is globally recognized as integral to an individual's overall health and sense of well-being (WHO, 2018), reflected in its inclusion within the United Nations Sustainable Development Goal 3 (SDG 3), "Good Health and Well-being," and underscored by various national research agendas prioritizing mental health initiatives. However, significant challenges impede effective mental health promotion, including limited access to mental health services, particularly in underserved areas, coupled with a pervasive lack of awareness and persistent stigma surrounding mental health issues. These factors collectively hinder national efforts to foster sound mental health within communities.

While mental health services may be more readily available in primary healthcare facilities and urbanized areas, rural communities face unique barriers to access. The high cost of services, coupled with geographical limitations, often leaves the mental health needs of rural populations unmet. A critical intervention involves enhancing the accessibility of mental health services at the community level. This approach aligns with the National Mental Health Research Agenda, which envisions expanded availability of services down to the community level, thereby strengthening community-based mental health care and fostering individual well-being.

In response to these challenges, this project aims to develop a comprehensive psychosocial support program targeted at diverse communities within Surigao del Sur and Agusan del Sur. The program will be designed to directly address identified barriers to mental health, promote awareness, reduce stigma, and provide accessible support, ultimately contributing to improved mental well-being among the target populations.

This project aims to:

- Determine the community's knowledge, attitude, and practices (KAP) regarding mental health.
- Conduct a psychosocial needs assessment within the identified community.
- Identify the community's pressing psychosocial needs.
- Create a psychosocial support program in response to these identified need

The team utilized these methods: Geographically Isolated and Disadvantaged Areas (GIDA) and Conflict-Affected Areas (CAA) were identified using the Department of Health's (DOH) GIDA Information System's existing 2023 data.

Urban areas were identified using the criteria in Resolution No. 9, Series of 2003, by the National Statistical Coordination Board of the Philippines. After identifying the communities in Surigao del Sur and Agusan del Sur, the researchers communicated and coordinated with them. The researchers prepared documents for data collection, including activity designs for research team meetings, workshops on data gathering tools, coordination meetings with target communities, enumerator hiring and training, and field data gathering training. Data was gathered through surveys and interviews with key informants

Development of a Community-Based Psychosocial Support Program for Rural Communities in Caraga

Quantitative analysis was used for survey responses, and thematic analysis for qualitative data from interviews. Data from both surveys and interviews was used to identify areas for incorporation into the psychosocial support program.

Following data analysis and a module writing workshop, the researchers will **develop a Psychosocial Support Program** and will be presented the output to the community (LGUs).

Series of workshops and meetings were conducted during the last three months of the year. The team conducted follow-up meetings with the barangays to validate the survey results, particularly focusing on the psychosocial needs assessment. During these meetings, barangay officials were invited to share specific problems or issues they encountered in their communities that could support the findings of the survey. After analyzing all the collected data, the research team presented the study results to the barangays. This presentation provided an opportunity for stakeholders to ask questions and seek clarifications regarding the findings. Additionally, it allowed the team to outline potential next steps based on the research outcomes.

To effectively package their research output, which centers on a psychosocial support program, a Module Writing Workshop was organized. In this workshop, the team worked collaboratively to finalize both the structure and content of the module, receiving valuable guidance from their resource speaker, Mr. Franco Agbalog, RPsy. This collaborative effort ensured that the module would be both comprehensive and practical for implementation in the community.

The research team participated in the Monitoring and Evaluation of Locally Funded Projects organized by the OVPRDIE where they presented the results and milestones of the project.



The project has a total project cost of **Php 1,970,000.00**, and is currently at a **75% completion rate, with a disbursement rate of 72.70%**. This progress is primarily attributed to the objective of procuring essential office materials and supplies, covering travel expenses, and securing other professional services.

To maintain this momentum and ensure timely disbursement, it is crucial for the research project team to adhere to the established timeline outlined in the work and financial plan.

75%
Project Completion

72.70%
Obligations & Disbursements

Challenges Encountered

01.

Budget utilization did not reach the target of 90%.

02.

Hectic travel schedules hindered the project team from concentrating on writing the research paper and other deliverables

Ways Forward

01.

Submit a proposal for the project to be extended until the 1st quarter of 2025 to utilize all remaining funds available

02.

Continue writing and packaging the modules and the research paper.

03.

Work on the other required reports (Terminal Report).

Communication Pathways of Falcata Adoption Among Farmers in Agusan del Sur, Philippines

Mark Vincent G. Vergara, MSc (Project Leader); Dr. Petervir A. Paz,, and Danielle Acedilla Jr., MAELT (Project Staff); John Aissac C. Cejuela (Project Assistant II)

Falcata farming in the Philippines has become a substantial income-generating agricultural activity among tree farmers. Falcata farming has supplied a growing demand in the local and international wood and paper industries. Wood processors produce veneer, plywood, and paper out of this tree. With the knowledge of propagating this type of tree species, farmers are enticed to do forestry projects to generate income (Dacanay, 2018). It is considered a potential plant with economic and ecological values (Paquit and Rojo, 2018).

Many tree farmers embark on a risky, expensive, and laborious endeavor of falcata farming believing that falcata planting gains financial benefits. Determined by the current demand and price situation, hard work and expenses of those falcata farmers must be protected by providing them with new adoption of better farming practices to their site. The economic benefits of integrating fast-growing trees on farms prompted many farmers to change their farming systems. Falcata along with fruit trees and other high-value agricultural crops were planted together forming different agroforestry systems with different components, nature, and purpose.

The immense benefits above make Falcata farming an easy pick for resource-poor farmers whose consistent aspiration is to rise from subsistence to profitable farming. But recent adoption and communication studies conducted in the Philippines have, likewise, revealed that while there is high adoption for falcata farming, most of the farmers have a very low level of understanding of the nature of tree farming and the recommended farming practices that go with it (Palma, et al, 2020).

Tree farmers have little knowledge of the agroforestry systems and practices they are implementing. These farmers should be empowered with the knowledge so they can choose the best management practices for the protection of this industry.

In terms of expanding the scope of production and achieving efficiency in the process, the significant levels in the supply chain must be well-understood and well-returned. Returns are observed based on the economic condition of an entity. However, the study of Peras et al., (2020) on the socio-economic impact of smallholding tree farming on the farmers in the Caraga region revealed that the smallholder tree farmers remained within the poverty line and marginalized despite the distributed increase in income during the tree harvesting.

The results were based on the smallholder tree farmers income level for the year 2015 from NEDA. This data will supplement the inquiry of the current economic and entrepreneurial condition of the smallholder tree farmers.

In the entrepreneurial aspect of small holding tree plantations, different countries were already practicing different methods of investment out of their profitability. This signifies that the smallholding tree plantation is not unique in the Philippines setting but even observed in Brazil, Bolivia, Ecuador, Peru, and in the United Kingdom (Hoch et al. 2009 Hardaker, 2018). In the context of its continuity, the smallholding tree farming community- company partnership in the Philippines started as early as 1968 (Peras et al 2020). Given the timespan, the economic stature of the farmers remained poor and within the poverty line (Peras et al. 2020). Moreover, the falcata farming in Agusan del Sur has been experiencing some problems and challenges in the plantation, adverse market, and policy conditions governing the small-scale tree farming industry.

Communication Pathways of Falcata Adoption Among Farmers in Agusan del Sur, Philippines

The Caraga Federation of Tree farmers and Developers Inc (FTFDI), and DENR-Caraga identified several challenges and constraints faced by small scale tree farmers namely political intervention, lack of technical support, absence of proper market linkage for the products, lack of quality-driven products from seed to wood management, and minimal community and capacity building. There has been a plethora of studies on falcata farming production except the communication and the economic and entrepreneurial aspects of the industry.

Hence, this study would like to address the challenges mentioned above by exploring the Communication pathways of falcata adoption and the economic and entrepreneurial Condition of falcata farmers in Agusan del Sur Caraga. Adoption here refers to how the farmers acquire and eventually apply the knowledge and practices pertaining to the planting of a falcata tree. Communication pathways refer to the process that captures how falcata farming is introduced adopted, disseminated, and shared by the farmers with others. By exploring the dynamics of Communication in the adoption of falcata, it is believed that will contribute to the generation of more local employment and opportunities for establishing local small-scale industries and local wood processors in the area.

The objectives of the project include:

- Description of the Falcata farmers
- Analysis of the falcata farming patterns
- Assessment of their communication pathways of falcata farming
- Identification of benefits and problems encountered in the adoption of Falcata farming:
- Identify recommendations by which the adoption of falcata farming among small-scale farmers may be enhanced.

The research employed a mixed-methods approach, beginning with the identification of target research locales. Following this, necessary documents for data gathering will be prepared to ensure a smooth and ethical research process.

Data collection will involve surveys to gather quantitative data and interviews with key informants to obtain qualitative insights. The collected data will then be analyzed using quantitative analysis for survey responses and thematic analysis for the qualitative data obtained from the interviews.

Both quantitative and qualitative data will be used to comprehensively address the research objectives.

Key activities and achievements include:

Research Project Team Meetings: Regular meetings to review the work plan, identify research locations, and delegate tasks.

Training Workshops: Several training sessions were conducted to enhance the skills of the research team. These included training on online survey tools, quantitative data analysis and report writing, project finalization, and policy brief writing.

Policy Brief Writeshop: A specific workshop focused on equipping researchers with the skills to create policy briefs to translate research findings into actionable recommendations for policymakers.

National Communication Research Conference (NCRC) Participation: The project team presented their research project at the NCRC 2024 in De La Salle University Manila, gaining valuable insights and networking opportunities.

Evaluating Research Project Outcomes: A two-day event focused on evaluating the project's progress, addressing challenges, identifying future research opportunities, and developing strategies for future funding proposals.

COMMUNICATION PATHWAYS OF FALCATA ADOPTION AMONG FARMERS IN AGUSAN DEL SUR, PHILIPPINES



The project has made significant progress, with **79%** of the work completed and **81%** of the funds utilized. To ensure the project continues to move forward smoothly and that expenditures remain efficient, it is essential to adhere to the planned timeline and budget.

79%
Project Completion

81%
Obligations & Disbursements

Challenges:

- Delayed project implementation start due to delayed approval of the Annual Procurement Plan (APP).
- Slow response from selected stakeholders when requesting secondary data.
- Overlapping workloads among the project team due to multiple designations and functions.
- Some study sites are in GIDA causing logistic concerns.
- Extended procedural requirements and approval processes, resulting in slower progress on project milestones.

Opportunities

- Multi-Stakeholder Partnerships
- Peer-Led Learning
- Capacity-Building Initiatives
- Knowledge Sharing
- Policy Recommendation

Ways Forward:

- Packaging of Terminal Report
- Development of Policy Brief
- Submission of required documents for project closure
- Writing Publication

Biodiversity Assessment of the Proposed Local Conservation Area in Barangay Sumile, Butuan City

Presentation of the Preliminary Research Findings during the 1st Regional Climate Change Action and Innovation Forum- LIKHA SUMMIT 2024

The research presentation was held on October 29, 2024, focused on the progress, challenges, and opportunities of the biodiversity assessment project conducted in Barangay Sumile, Butuan City. The session provided a platform for presenting preliminary findings, discussing financial performance, evaluating expected outputs, identifying challenges, and outlining the project's ways forward. The activity aimed to ensure that the project aligns with its objectives and continues to contribute meaningfully to biodiversity conservation efforts.



3-Day Technical Report Writing and Development Session on Biodiversity Assessment Findings of the Biodiversity Assessment of the Proposed Local Conservation Area in Barangay Sumile, Butuan City

The three-day workshop focused on developing the terminal report for the Biodiversity Assessment of Barangay Sumile, Butuan City, with the goal of establishing it as a Local Conservation Area (LCA). Facilitated by project proponents and attended by experts and undergraduate assistants, the sessions provided a structured platform to review and document biodiversity findings systematically.

On Day 1, participants traveled from Caraga State University to Kakilgan Beach Resort, where Dr. Romell Alope Seronay highlighted the project's significance. Dr. Eve Fernandez Gamalinda presented an overview of the BACAS Project, followed by presentations from eight Undergraduate Thesis Assistants (UTSAs) on their studies. The day concluded with a drafting session led by Sir Archie Auditor Along and Jesiel Cris Paylangco, MSc., focusing on species data.

Day 2 began with an overview session outlining specific objectives. Participants reviewed biodiversity assessment data, including species inventories and habitat assessments, and drafted critical sections of the report under Associate Professor Chennie Solania Naling's guidance.

On the final day, participants drafted the results and discussion sections, analyzing biodiversity data to clearly present findings. They reviewed accomplishments from Day 1, identified gaps, and refined the results section for clarity. The workshop concluded with preparations for departure, marking a productive session aimed at enhancing biodiversity conservation efforts in Barangay Sumile.

BIODIVERSITY ASSESSMENT OF THE PROPOSED LOCAL CONSERVATION AREA IN BARANGAY SUMILE, BUTUAN CITY



The project team during the conduct of Technical Report Writing

Attended the Joint Committee Hearing on Environment presided over by Hon. Victor Plaza Concerning the Proposed Forest Parcel Area to be Established as a Local Conservation Area

Dr. Eve Fernandez Gamalinda, the Science Research Project Leader, and Roland Care Banggo Burdeos, the Science Research Specialist, attended a joint committee hearing on the environment to discuss a biodiversity assessment in Barangay Sumile. This assessment is crucial for proposing a Local Conservation Area (LCA) in the barangay. During the hearing, the presented a local ordinance, initially authored by Hon. Victor Vicente Plaza, which currently focuses on the Zoological Garden and covers 19 hectares. The research team had already planned to conserve three sampling stations before starting the biodiversity assessment. Proposed amendments to enhance the ordinance were also prepared by the research team

The team also submitted a Position Paper on the proposed local conservation area.

Position Paper on the Proposed Amendment for the Proposed SP Ordinance No. 16- 138- 2024 of Hon. Victor Vicente G. Plaza, entitled "AN ORDINANCE DESIGNATING AND DECLARING THE NINETEEN (19) HECTARES PARCEL OF FOREST LAND IN BARANGAY SUMILE, BUTUAN CITY, AS A LOCAL CONSERVATION AREA, SETTING RESTRICTIONS AND REGULATIONS, IMPOSING PENALTIES, PROVIDING FUNDS THEREOF, AND FOR OTHER PURPOSES"

This position paper is submitted in relation to the Joint Committee Hearing held on November 20, 2024, by the Committee on Environment and Natural Resources and the Committee on Good Government, Ethics, Human Rights, Laws, Rules, and Styles. As outlined in SP Ordinance No. 16-138-2024, a 19-hectare area of forest land, known as the Botanical and Zoological Garden is proposed to be designated as a Local Conservation Area (LCA).

It also presents scientifically gathered data supporting the proposal for additional Local Conservation Area sites in Barangay Sumile. The information was collected during a biodiversity assessment conducted from April to July 2024, adhering to the DENR's Biodiversity Assessment and Monitoring System (BAMS) to ensure reliability and compliance with established methodologies

BIODIVERSITY ASSESSMENT RESULTS

During the biodiversity assessment in Barangay Sumile, we identified two additional sites: the riparian areas of Topaz (Figure 1A) and the Sitio Calimpong area (Figure 1B). In this paper, we propose adding two more forest parcels: (1) the entire Protected Forest (green polygon, 237 hectares as per Butuan City land zoning) and (2) the Barko-Barko area (pink polygon, 219 hectares), which are adjacent to our study sites and recognized for their biodiversity based on our data analysis

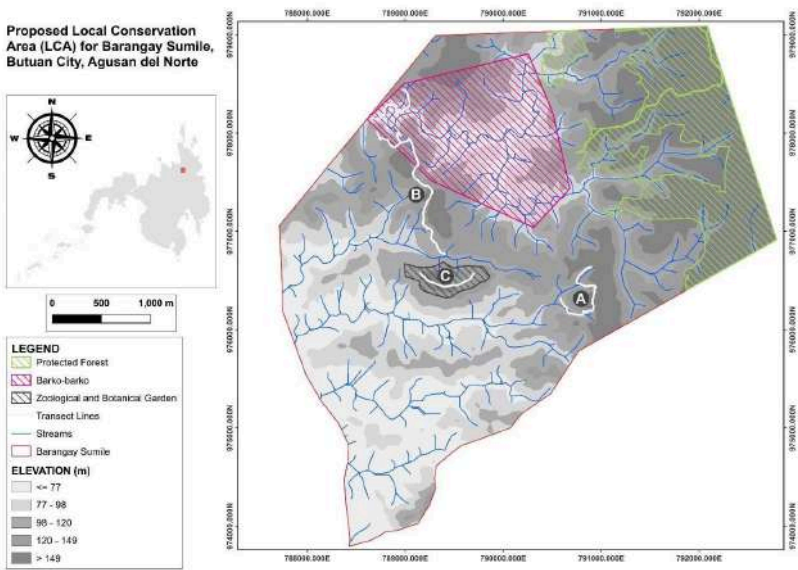


Figure 1. Proposed Local Conservation Area (LCA) for Barangay Sumile, Butuan City, Agusan del Norte. Riparian area in Topaz (A), Sitio Calimpong area (B), and Zoological and Botanical Garden (C).

The project’s assessment identified approximately 101 tree species in Barangay Sumile, with the most dominant species being White Lawaan (*Shorea contorata*) at 6.3%, Falcata (*Falcataria moluccana*) at 6.9%, and Tugop (*Artocarpus sericicarpus*) at 8.9%. As detailed in Table 1, the Moraceae family emerged as the most prevalent, represented by 20 species, including six from the genus *Ficus*. These *Ficus* species are recognized as keystone species in Barangay Sumile due to their year-round fruiting, which provides a consistent food source essential for sustaining diverse wildlife within the forest ecosystem. The findings underscore the ecological significance of Barangay Sumile and support the need for additional conservation efforts to protect its rich biodiversity.

- 101 Tree Species
- 31 Herpetofauna species (12 amphibians; 19 reptiles)
- 64 Avi-fauna (35 endemic species; 29 resident species)
- 8 Mammalian species
- 106 Vertebrate species (19 amphibians, 19 reptiles, 64 birds, 8 bat species)

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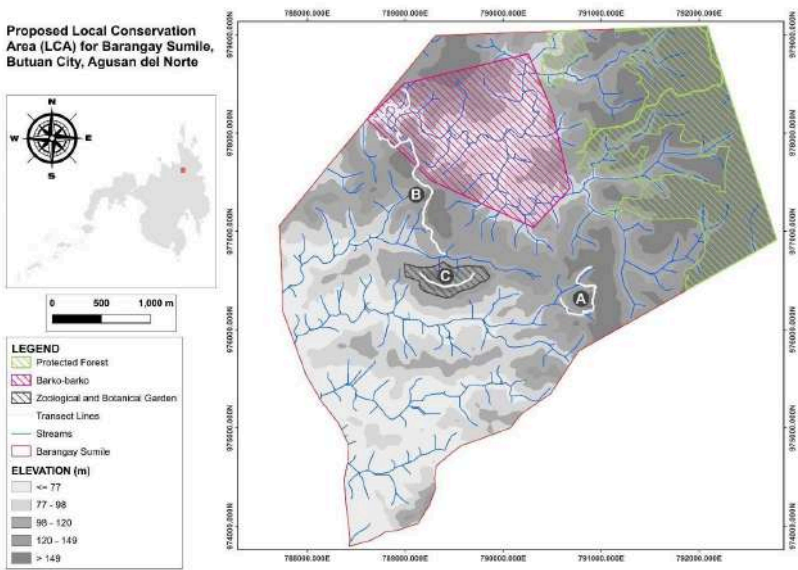


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BIODIVERSITY ASSESSMENT RESULTS

Table 1. Tree species recorded per area within the forest land area of Barangay Sumile, Butuan City

Scientific Name	Local Name	Conservation Status		1	Area		
		DAO-2019-09	IUCN		2	3	4
Anacardiaceae							
Koordersiodendron pinnatum	Sambulawan	OTS	VU			/	
Semecarpus cuneiformis	Ligas	OWS	LC	/		/	/
Annonaceae							
Annona squamosa	Atis	OWS	LC			/	
Cananga odorata	Alangilan	OWS	LC	/	/		/
Drepananthus apoensis	Banayaw	OWS	VU			/	
Mitrephora sp.						/	
Monoon sp.						/	
Apocynaceae							
Alstonia scholaris	Dita	OWS	LC	/			
Araliaceae							
Polyscias nodosa	Bingliw	OWS	LC	/		/	
Arecaceae							
Cocos nucifera	Lubi	OWS		/	/	/	/
Orania decipiens	Abog	VU	LC	/		/	
Bignoniaceae							
Radermachera quadripinnata	Banai-banai	OWS	LC			/	
Brownlowiaceae							
Diplodiscus paniculatus	Balobo	OWS	LC			/	/
Burseraceae							
Canarium luzonicum	Pili pili	OTS	NT				/
Canarium ovatum	Pili pili	OTS	LC	/		/	/
Canarium asperum	Pili pili	OWS	LC	/	/		/
Canarium sp.					/		
Dacryodes sp.						/	
Byttneriaceae							
Commersonia bartramia	Anitap	OWS	LC	/			
Calophyllaceae							
Calophyllum blancoi	Bitanghol	OWS	LC	/		/	
Calophyllum sp.						/	
Cannabaceae							
Trema orientale	Anabiong	OWS	LC		/		
Combretaceae							
Terminalia catappa	Talisay	OWS	LC	/		/	
Terminalia microcarpa	Kalumpit	OWS	LC			/	
Terminalia nitens	Magtalishai	OWS	LC	/			
Dilleniaceae							
Dillenia philippinensis	Katmon	OWS	NT			/	
Dipterocarpaceae							

Moreover, the faunal assessment in Barangay Sumile identified a diverse range of wildlife, each contributing to the ecosystem's balance. Amphibians act as bioindicators and insect controllers, while reptiles regulate smaller populations as predators and prey. Birds and bats aid in seed dispersal and pollination, with bats also controlling insects. Primates play a key role in seed dispersal, supporting forest regeneration and connectivity. Together, these species help sustain the biodiversity and ecological status of the forested landscapes of Brgy. Sumile.

The herpetofauna assessment recorded 31 herpetofauna species, comprising 12 amphibians and 19 reptiles (Table 2). These species belong to 14 families (Bufonidae, Ceratobatrachidae, Dicroglossidae, Megophryidae, Microhylidae, Ranidae, Rhacophoridae, Agamidae, Colubridae, Elapidae, Gekkonidae, Geoemydidae, Lamprophiidae, and Viperidae) and three orders (Anura, Squamata, and Testudines).

BIODIVERSITY ASSESSMENT RESULTS

Table 2. Herpetofauna species recorded per area within the forest land area of Barangay Sumile, Butuan City.

Scientific Name	Common Name	Conservation Status		Area			
		IUCN	DAO-2019-09	1	2	3	4
AMPHIBIANS							
Bufonidae							
Rhinella marina	South American cane toad	LC	OWS	/	/		
Ceratobatrachidae							
Platymantis corrugatus	Philippine wrinkled ground frog	LC	OWS	/		/	/
Platymantis dorsalis	Dumeril's wrinkled ground frog	LC	OWS	/	/		/
Dicroglossidae							
Fejervarya vittigera	Luzon wart frog	LC	OWS	/	/	/	
Limnonectes magnus	Mindanao fanged frog	NT	OTS	/	/	/	/
Occidozyga laevis	Philippine oriental frog	LC	OWS		/	/	
Megophryidae							
Pelobatrachus stejnegeri	Mindanao horned frog	LC	OTS	/		/	
Microhylidae							
Chaperina fusca	Brown thorny frog	LC	OWS		/		
Kalophrynus sinensis	Philippine sticky frog		OWS	/	/	/	/
Kaloula conjuncta	Philippine narrowmouth frog	LC	OWS			/	
Ranidae							
Pulchrana grandocula	Big-eyed frog	LC	OWS	/		/	/
Rhacophoridae							
Polypedates leucomystax	Common tree frog	LC	OWS	/	/		
REPTILES							
Agamidae							
Draco bimaculatus	Two-spotted flying lizard	LC	OWS	/	/		/
Gonocephalus interruptus	Mindoro anglehead dragon	LC	OTS	/			
Hemidactylus frenatus	Common house gecko	LC	OWS	/	/		
Colubridae							
Calamaria lumbricoidea	Variable reed snake	LC	OWS	/		/	
Coelognathus erythrurus	Philippine trinket snake	LC	OWS	/			
Dendrelaphis philippinensis	Philippine bronzeback tree snakes	LC	OWS			/	
Elapidae							
Calliophis philippinus	Philippine coral snake	LC	OWS		/		
Naja samarensis	Samar cobra	LC	OTS	/			
Gekkonidae							
Cyrtodactylus annulatus	Annulated bow- fingered gecko	LC	OWS		/		/
Geoemydidae							
Cuora philippinensis	Southeast Asian box turtle	EN	OTS		/		
Lamprophiidae							
Oxyrhabdium modestum	Non-banded Philippine burrowing snake	LC	OWS	/	/		/
Scincidae							
Brachymeles hilong	Graceful short-legged skink	LC	OWS	/		/	

Notably, 35% of the recorded species (S=12) are endemic to Mindanao, with one species, *Chaperina fusca*, previously unrecorded in the forest landscapes of Agusan del Norte but known from Gingoog, Misamis Oriental, and Agusan del Sur. Among the amphibians, only the Common Tree Frog (*Polypedates leucomystax*) was observed to be arboreal, while the rest of the anurans were predominantly terrestrial, inhabiting diverse microhabitats such as forest floors, cliffs (Platymantis species), rock boulders (Big-eyed frog and Philippine Fanged Frog), wet leaf litter (Brown Thorny Frog), and river pools (Philippine Oriental Frog).

BIODIVERSITY ASSESSMENT RESULTS

During our study, we recorded 64 avifauna species belonging to 35 families and 10 orders (see Table 3). Notably, 35 of these species are endemic to the Philippines, and 29 are resident species, highlighting the area's ecological uniqueness.

Several habitat-specific birds identified in the assessment are classified as vulnerable under the IUCN Red List and DAO-2019-09, including *Actenoides hombroni* (Blue-capped Kingfisher); *Todiramphus winchelli* (Rufous-lored Kingfisher); *Sarcophanops steerii* (Mindanao Wattled Broadbill); *Ficedula basilanica* (Little Slaty Flycatcher).

Additionally, the *Loriculus philippensis* (Philippine Hanging Parrot), a resident species often exploited for the pet trade, is critically endangered. Various dove species are also threatened due to hunting and exploitation. These findings underscore the urgent need for conservation efforts to protect these vulnerable avian species and their habitats.

Scientific Name	Common Name	Conservation Status		Area			
		IUCN	DAO-2019-09	1	2	3	4
<i>Eutropis multifasciata</i>	Common mabuya	LC	OWS	/	/	/	/
<i>Lamprolepis smaragdina philippinica</i>	Emerald skink	LC	OWS	/	/	/	
<i>Pinoyscincus abdictus</i>	Mindanao forest skink	LC	OWS	/			
<i>Pinoyscincus jagori</i>	Jagor's sphenomorphus	LC	OWS	/	/		
<i>Sphenomorphus fasciata</i>	Banded sphenomorphus	LC	OWS		/		
<i>Tropidophorus misaminius</i>	Misamis waterside skink	LC	OWS	/	/	/	/
Viperidae							
<i>Tropidolaemus subannulatus</i>	Bornean keeled green pit viper	LC	OWS				/

Conservation status. For the International Union of Conservation of Nature (IUCN): Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR). For DENR Administrative Order (DAO) 2019-09: Other Wildlife Species (OWS), Other Threatened Species (OTS), Near Threatened (NT), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR).

Area- (1) Riparian area in Topaz, (2) Sitio Calimpong Area, (3) Botanical and Zoological Garden, and (4) Barko- barko area

In our assessment of mammalian species, we recorded eight bat species from two families: *Hipposideridae* and *Pteropodidae* (see Table 4). The data indicate a significant presence of fruit bats, with the Lesser Dog-faced Fruit Bat (*Cynopterus brachyotis*) comprising approximately 35.89% of the total bat population, while the Greater Musky Fruit Bat (*Ptenochirus jagori*) accounted for an impressive 45.82%.

Notably, the Philippine Dawn Bat (*Eonycteris robusta*), classified as Vulnerable (VU) by the IUCN and DAO-2019-09, highlights conservation concerns in the region. Other resident species included the Diadem Leaf-nosed Bat (*Hipposideros diadema*) and the Harpy Fruit Bat (*Harpyionycteris whiteheadi*), with lower relative abundances of 0.39% and 0.10%, respectively.

Our biodiversity assessment also focused on rodents and long-tailed macaques (see Table 5). The Mindanao Forest Rat (*Bullimus bagobus*) was the dominant species, exhibiting a relative abundance of 80.00%, indicating its significant ecological role. This species is classified as Least Concern (LC) by the IUCN, suggesting it faces no immediate threats. Additionally, we recorded the Philippine Forest Rat (*Rattus everetti*), which made up 20.00% of the rodent population in Barangay Sumile. While we noted the presence of long-tailed macaques, their population size remains undetermined due to their mobility; this will be a primary focus in Phase 2 of conservation studies by Caraga State University-CREME in Barangay Sumile in 2025.

BIODIVERSITY ASSESSMENT RESULTS

Table 3. Avifauna species recorded per area within the forest land area of Barangay Sumile, Butuan City

Scientific Name	Common Name	Conservation Status		1	Area 2	3
		IUCN	DAO-2019-09			
Accipitridae						
<i>Haliastur indus</i>	Brahminy Kite	LC, ↓	OWS	/		/
<i>Spilornis holospilus</i>	Philippine Serpent Eagle	LC, ↓	OWS		/	
Alcedinidae						
<i>Actenoides hombroni</i>	Blue-capped Kingfisher	VU, ↓	VU	/		
<i>Ceyx argentatus</i>	Southern Silvery - Kingfisher	NT, ↓	VU	/		
<i>Ceyx margarethae</i>	Dimorphic Dwarf-kingfisher	LC, ↓	OTS	/	/	
<i>Ceyx mindanensis</i>	South Philippine Dwarf-kingfisher	VU, ↓	OWS	/		/
<i>Todiramphus chloris</i>	Collared Kingfisher	LC, ↓	OWS	/	/	
<i>Todiramphus winchelli</i>	Rufous-lored Kingfisher	VU, ↓	VU		/	
Artamidae						
<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	LC, —	OWS	/	/	/
Bucerotidae						
<i>Penelopides affinis</i>	Mindanao Hornbill	LC, ↓	EN	/	/	
Campephagidae						
<i>Lalage nigra</i>	Pied Triller	LC, ↓	OWS	/	/	/
Caprimulgidae						
<i>Caprimulgus manillensis</i>	Philippine Nightjar	LC, —	OWS	/	/	/
Cisticolidae						
<i>Orthotomus nigriceps</i>	Black-headed Tailorbird	LC, —	OWS	/		
Columbidae						
<i>Chalcophaps indica</i>	Asian Emerald Dove	LC, ↓	OWS	/		/
<i>Geopelia striata</i>	Zebra Dove	LC, —	OWS		/	
<i>Macropygia tenuirostris</i>	Philippine Cuckoo-dove	LC, ↓	OWS	/	/	/
<i>Phapitreron brevirostris</i>	Short billed - Brown-dove	LC, —	OWS	/	/	/
<i>Ptilinopus leclancheri</i>	Black-chinned Fruit-dove	LC, ↓	OWS	/		/
<i>Spilopelia chinensis</i>	Spotted Dove	LC, ↑	OWS		/	/
Corvidae						
<i>Corvus macrorhynchos</i>	Large-billed Crow	LC, —	OWS	/	/	/
Cuculidae						
<i>Cacomantis variolosus</i>	Brush Cuckoo	LC, —	OWS	/	/	/
<i>Centropus melanops</i>	Black-faced Coucal	LC, ↓	OWS		/	/
<i>Centropus viridis</i>	Philippine Coucal	LC, —	OWS	/	/	/
<i>Eudynamis orientalis</i>	Asian Koel	LC, —	OWS	/	/	/
<i>Surniculus velutinus</i>	Philippine Drongo-cuckoo	LC, ↓	OWS	/		/
Dicaeidae						
<i>Dicaeum australe</i>	Red-keeled Flowerpecker	LC, —	OWS	/	/	/
<i>Dicaeum trigonostigma</i>	Orange-bellied Flowerpecker	LC, —	OWS	/		/
Estrildidae						
<i>Lonchura leucogastra</i>	White-bellied Munia	LC, —	OWS			/
Eurylaimidae						
<i>Sarcophanops steerii</i>	Mindanao Wattled Broadbill	VU, ↓	VU	/		
Laniidae						
<i>Lanius cristatus</i>	Brown Shrike	LC	OWS	/	/	
Locustellidae						
<i>Cincloramphus timoriensis</i>	Tawny Grassbird	LC, ↓	OWS	/	/	/
<i>Megalurus palustris</i>	Striated Grassbird	LC	OWS	/	/	
Megalaimidae						
<i>Psilopogon haemacephalus</i>	Coppersmith Barbet	LC, ↑	OWS	/	/	/
Meropidae						
<i>Merops americanus</i>	Rufous-crowned Bee-eater	LC, —	OWS		/	/
Monarchidae						
<i>Hypothymis azurea</i>	Black-naped Monarch	LC, —	OWS	/	/	

BIODIVERSITY ASSESSMENT RESULTS

Continuation...(Table 3. Avifauna species recorded per area within the forest land area of Barangay Sumile, Butuan City)

Scientific Name	Common Name	Conservation Status		Area		
		IUCN	DAO-2019-09	1	2	3
<i>Terpsiphone cinnamomea</i>	Southern Rufous Paradise-flycatcher	LC, —	OWS		/	/
Muscicapidae						
<i>Cyornis ruficauda</i>	Chestnut-tailed Jungle Flycatcher	LC, ↓	OWS	/		
<i>Cyornis rufigastra</i>	Mangrove Blue-flycatcher	LC, ↓	OWS	/	/	
<i>Ficedula basilarica</i>	Little Slaty Flycatcher	VU, ↓	VU	/	/	
<i>Muscicapa griseisticta</i>	Grey-streaked Flycatcher	LC, —	OWS		/	
Nectarinidae						
<i>Arachnothera flammifera</i>	Orange-tufted Spiderhunter	LC, —	OWS	/	/	/
<i>Cinnyris jugularis</i>	Olive-backed Sunbird	LC, —	OWS	/	/	/
<i>Leptocoma sperata</i>	Purple-throated Sunbird	LC, —	OWS	/	/	/
Oriolidae						
<i>Oriolus chinensis</i>	Black-naped Oriole	LC, ↓	OWS	/	/	
Pachycephalidae						
<i>Pachycephala philippinensis</i>	Yellow-bellied Whistler	LC, ↓	OWS		/	
Passeridae						
<i>Passer montanus</i>	Eurasian Tree Sparrow	LC, ↓	OWS			/
Pellorneidae						
<i>Ptilocichla mindanensis</i>	Striated Wren-Babbler	LC, ↓	OWS	/		
Phylloscopidae						
<i>Phylloscopus borealis</i>	Arctic Warbler	LC, ↑	OWS	/		
Pittidae						
<i>Erythropitta erythrogaster</i>	Philippine Pitta	LC, ↓	OWS	/		
<i>Pitta sordida</i>	Western Hooded Pitta	LC, ↓	OWS	/	/	
Podargidae						
<i>Batrachostomus septimus</i>	Philippine Frogmouth	LC, ↓	OWS	/		
Psittacidae						
<i>Bolbopsittacus lunulatus</i>	Guaiabero	LC, —	OWS	/	/	
<i>Loriculus philippensis</i>	Philippine Hanging-parrot	LC, ↓	CR	/	/	
Pycnonotidae						
<i>Hypsipetes philippinus</i>	Philippine Bulbul	LC, —	OWS	/	/	/
<i>Pycnonotus goiavier</i>	Yellow-vented Bulbul	LC, ↑	OWS	/	/	/
<i>Pycnonotus urostictus</i>	Yellow-wattled Bulbul	LC, —	OWS	/	/	/
Rallidae						
<i>Hypotaenidia torquata</i>	Barred Rail	LC	OWS	/	/	
Rhipiduridae						
<i>Rhipidura nigritorquis</i>	Philippine Pied Fantail	LC, —	OWS		/	/
Strigidae						
<i>Otus mirus</i>	Mindanao Lowland Scops-owl	LC, ↓	OWS	/		
Sturnidae						
<i>Aplonis panayensis</i>	Asian Glossy Starling	LC	OWS	/		/
<i>Rhabdornis mystacalis</i>	Stripe-sided Rhabdornis	LC, ↓	OWS	/	/	
<i>Sarcops calvus</i>	Coletto	LC	OWS	/	/	
Timaliidae						
<i>Macronus striaticeps</i>	Brown Tit-babbler	LC, ↓	OWS	/	/	
Zosteropidae						
<i>Zosterops everetti</i>	Everett's White-eye	LC, ↓	OWS	/		

BIODIVERSITY ASSESSMENT RESULTS

Table 4. Volant mammal species recorded per area within the forest land area of Barangay Sumile, Butuan City

Scientific Name	Common Name	Conservation Status			Area	
		IUCN	DAO-2019-09	1	2	3
Hipposideridae						
<i>Hipposideros diadema</i>	Diadem leaf-nosed Bat	LC	OWS	/		
Pteropodidae						
<i>Cynopterus brachyotis</i>	Lesser Dog-faced fruit Bat	LC	OWS	/	/	/
<i>Eonycteris robusta</i>	Philippine dawn bat	VU	VU		/	/
<i>Harpyionycteris whiteheadi</i>	Harpy fruit bat	LC	OWS		/	
<i>Macroglossus minimus</i>	Dagger-toothed Long-nosed Bat	LC	OWS	/	/	/
<i>Ptenochirus jagori</i>	Greater musky Fruit bat	LC	OWS	/	/	/
<i>Ptenochirus minor</i>	Lesser musky fruit bat	LC	OWS	/		
<i>Roussetus amplexicaudatus</i>	Egyptian fruit bat	LC	OWS	/	/	/

Conservation status. For the International Union of Conservation of Nature (IUCN): Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR). For DENR Administrative Order (DAO) 2019-09: Other Wildlife Species (OWS), Other Threatened Species (OTS), Near Threatened (NT), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR).

Area- (1) Riparian area in Topaz, (2) Sitio Calimpong Area, and (3) Botanical and Zoological Garden

Table 5. Non-volant mammal species recorded per area within the forest land area of Barangay Sumile, Butuan City

Scientific Name	Common Name	Conservation Status		Area		
		IUCN	DAO-2019-09	1	2	3
Muridae						
<i>Bullimus bagobus</i>	Mindanao forest rat	LC	OWS	/	/	/
<i>Rattus everetti</i>	Philippine forest Rat	LC	OWS		/	/
<i>Macaca fascicularis philippinensis</i>	Philippine Long-tailed Macque	EN	OWS		/	/

Conservation status. For the International Union of Conservation of Nature (IUCN): Least Concern (LC), Near Threatened (NT), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR). For DENR Administrative Order (DAO) 2019-09: Other Wildlife Species (OWS), Other Threatened Species (OTS), Near Threatened (NT), Vulnerable (VU), Endangered (EN), and Critically Endangered (CR).

Area- (1) Riparian area in Topaz, (2) Sitio Calimpong Area, and (3) Botanical and Zoological Garden

The community structure analysis of plant species (Figure 2), supported by the S17 Bray-Curtis similarity index, shows a moderate distinction between secondary forests in protected areas like Barko-Barko and the Botanical Garden, and agroforest landscapes such as Topaz and Calimpong. While there is some overlap in species composition, secondary forests support a higher diversity of native and potentially rare flora. These patches serve as crucial biodiversity reservoirs in Barangay Sumile, contributing to ecosystem health by providing wildlife habitat and maintaining ecological stability. This underscores the urgent need for targeted conservation initiatives by the Local Government Unit of Butuan.

BIODIVERSITY ASSESSMENT RESULTS

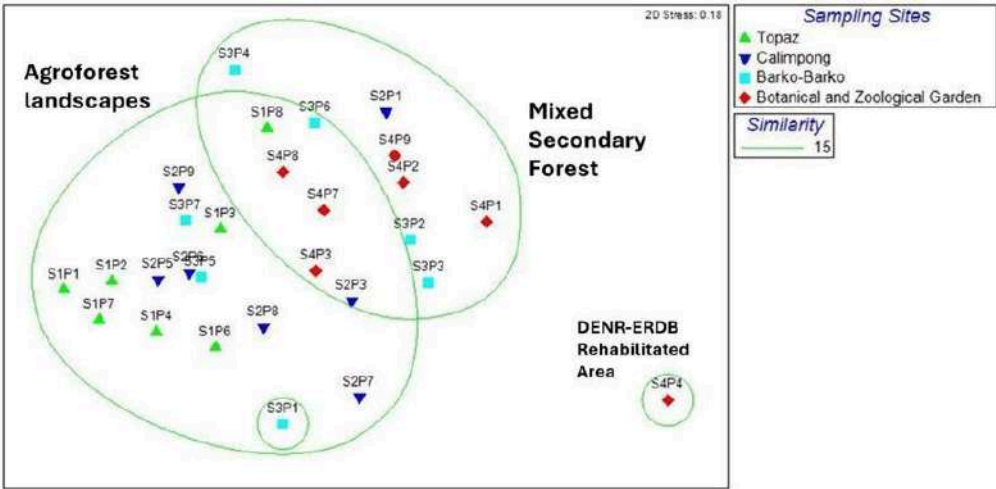
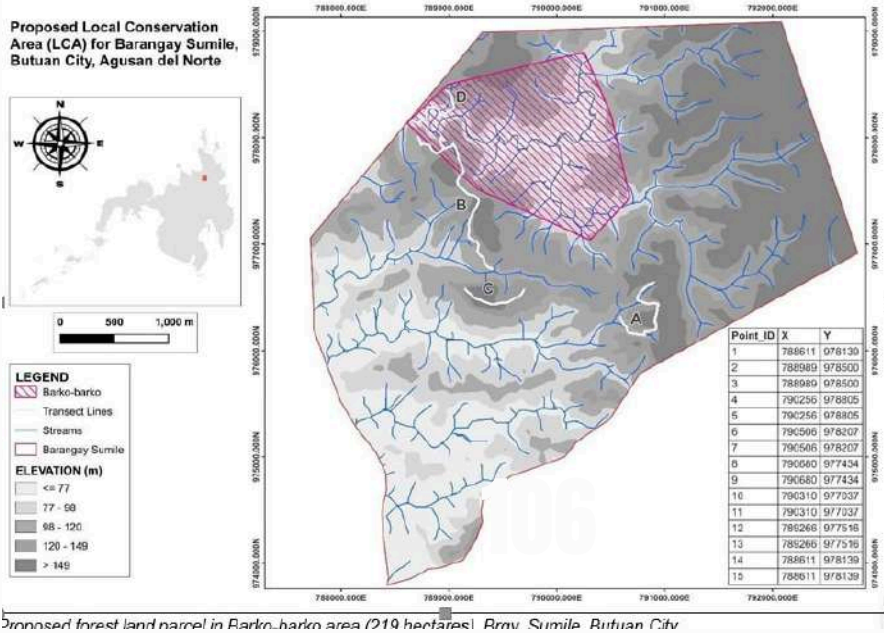


Figure 2. Community structure analysis (S17 Bray-Curtis Similarity Index) of Sampling sites in Brgy. Sumile

Although our assessment focused on a small portion of the protected forest, data indicate that the Barko-Barko area harbors high plant diversity ($H' > 3.0$), including endemic and threatened species such as *Shorea polysperma* (Tanguile), *Shorea contorta* (White Lawaan), *Ficus gigantifolia* (Malatibig), *Begonia agusanensis*, and a potential new species of *Medinilla*. We recorded 106 vertebrate species across various taxa, demonstrating significant diversity in the agroforest area, including 12 amphibians, 19 reptiles, 64 birds, and 8 bat species.



Given this biodiversity, we propose including (1) the Protected Forest (237 hectares) and (2) the Barko-Barko area (219 hectares) in Barangay Sumile as Local Conservation Areas. Expanding conservation efforts in these regions will enhance ecological, social, and economic benefits by preserving a wider variety of plant and animal species and allowing ecosystems to function more effectively.

BIODIVERSITY ASSESSMENT RESULTS

Presented the Avifaunal Species of Brgy. Sumile, Butuan City for the 13th Asian Bird Fair, Las Pinas City, Philippines

Dr. Romell A. Seronay participated in the 13th Asian Bird Fair, held in Las Piñas City from November 21 to 22, 2024. This significant event gathered birdwatchers, conservationists, and eco-tourism advocates from over 20 countries, highlighting the importance of avian conservation and sustainable eco-tourism. As the Director of CSU's Center for Research in Environmental Management and Eco-Governance (CREME), I presented our innovative research initiatives, including findings on diverse bird species from Lake Mainit and Barangay Sumile, habitat suitability studies for the Mindanao Hornbill, and educational materials promoting biodiversity awareness.



99%
Project Completion

99%
Obligation and Disbursements

Attended the Office of the Vice President for Research in Research and Development, Innovation and Extension 3-day Year End Assessment at Le Pavillon, Municipality of Magsaysay, Misamis Oriental

The Office of the Vice President for Research, Development, and Extension (OVPRDIE) at Caraga State University successfully hosted a three-day project review at Le Pavillion Beach Resort in Magsaysay, Misamis Oriental. This event gathered key stakeholders to discuss the outputs of the RAF-funded research project on the biodiversity assessment for a proposed Local Conservation Area (LCA) in Barangay Sumile, Butuan City.

The primary objectives included presenting the assessment findings, engaging stakeholders on the ecological significance of the area, and addressing queries regarding management and protection strategies. The opening day featured a comprehensive presentation highlighting Barangay Sumile's ecological importance, notable biodiversity findings, and the ecosystem services it provides to the local community. Detailed data and visual aids reinforced the necessity of preserving this region's biodiversity, emphasizing the project's goal of establishing a sustainable LCA for long-term conservation.

PROBLEMS AND CONSTRAINTS

During the first four months of initiating activities aligned with the research project, we have identified various crucial constraints that will significantly impact the timely execution of project tasks. The encountered issues include:

- **Vehicle for Off-Campus Activities:** During the initial stages of the project, one of the prominent challenges was the absence of a dedicated vehicle to facilitate off-campus meetings and activities. The nature of the environmental project necessitates frequent visits to study points, community engagements, and collaboration with stakeholders. The lack of a designated vehicle posed logistical constraints, affecting the efficiency and timeliness of these crucial off-campus activities.
- **Inaccessibility to Internet at Study Points:** From a specific research perspective, an identified obstacle revolves around the inaccessibility to the internet at selected study points within the area. This limitation hampers real-time data transmission, hindering the prompt analysis and communication of findings.
- **Lack of Definite Source of Potable Water:** Another noteworthy problem identified is the absence of a definite source of potable water in the project area. This poses concerns for the well-being of the research team during field activities.
- **Lack of Knowledge in Programming a Database:** In the realm of ongoing research, a technical challenge emerged in the form of a deficiency in programming skills to develop a database for downstream processing of captured scientific data. Recognizing the significance of organized and streamlined data management, efforts are being made to upskill the research team.

RECOMMENDATIONS

To address the aforementioned constraints/difficulties/problem related to the current research project, it is right to address it as recommended below:

- The lack of a designated vehicle posed logistical constraints, affecting the efficiency and timeliness of these crucial off-campus activities. This challenge can be addressed by exploring potential options for acquiring a suitable vehicle, considering both rental and partnership possibilities to meet the project's mobility requirements.
- To mitigate this connectivity challenge during fieldwork, alternative strategies such as utilizing offline data collection tools and establishing a systematic data transfer plan during periodic internet access windows have been proposed. These solutions aim to maintain data integrity despite the connectivity challenges encountered at certain study locations.
- To address gaps concerning potable source of water, government plans should be initiated to collaborate with local authorities and communities to identify sustainable water sources or implement water purification measures. Ensuring a safe and reliable water supply is crucial not only for the researchers' health but also for the success of field activities in the long run.
- To mitigate gaps concerning the lack of database programmer, the institution may arrange training sessions, seeking external expertise, or exploring partnerships with other institutions or individuals possessing the necessary programming proficiency.

MUGNA CARAGA: Mentoring and Upskilling Groups towards Navigating their Action-response CEd Extension Project

Education Learning Needs and Monitoring and Evaluation of Partner School

On November 25, 2024, the College of Education, through its MUGNA Extension Project, conducted a seminar training titled "Indigenous People Mathematics Education Learning Needs and Monitoring and Evaluation of Partner School" at Tagkiling Tribal High School in Butuan City. The event was attended by 14 teachers, the school head, an alumni officer, and 74 students, focusing on the educational needs of Indigenous People (IP) students.



Participants from Tagkiling Tribal Integrated School

Dr. Maris Lasco led a session on indigenizing instructional materials, presenting culturally relevant Grade 7 mathematics lessons. The school principal, Mr. Mark Joseph Paguta, discussed the specific needs of students and teachers, while a focused group discussion allowed teachers to share experiences and identify challenges. Insights from this seminar will inform future activities under the MUGNA Extension Project, ensuring they are responsive to community needs.

Dr. Lasco emphasized the importance of developing indigenized instructional materials aligned with IP learners' cultural contexts. Mr. Paguta expressed gratitude for the support from the College of Education, highlighting how this initiative addresses challenges in delivering quality education in the tribal community. The collaboration between the two institutions aims to enhance educational quality and foster inclusivity for IP learners.

MUGNA CARAGA: Mentoring and Upskilling Groups towards Navigating their Action-response CEd Extension Project

Outreach Project

On November 25, 2024, the MUGNA CARAGA: Mentoring and Upskilling Groups towards Navigating their Action-Response (CEd Extension Project) held an outreach program for Indigenous People (IP) students at Tagkiling Tribal High School. Led by Dr. Maris T. Lasco, in collaboration with Mr. Ronie Gerona, Vice President of the CSU Alumni Association, and the Independent Order of Odd Fellows Grand Lodge of the Philippines, the event focused on gift-giving and information dissemination.

The program began with a warm welcome from the school principal and tribal leaders, who expressed gratitude for the initiative. Dr. Lasco emphasized the project's goals of empowering Indigenous communities through education, while Mr. Gerona highlighted his organization's commitment to community service and educational development for IP youth.

The second segment of the outreach program focused on raising awareness about educational opportunities and scholarship programs for Indigenous People (IP) students. Representatives from the College of Education and guest speakers discussed various scholarship options, including application processes and eligibility criteria, while an open forum allowed students and parents to engage and share aspirations.

The program concluded with expressions of gratitude from students and tribal leaders, who acknowledged its impact on motivating youth to prioritize education. The collaboration between MUGNA CARAGA, the CSU Alumni Association, and the Independent Order of Odd Fellows demonstrated the power of partnerships in creating meaningful change. This initiative reaffirms a commitment to fostering a brighter future for Indigenous youth through education and empowerment.

99%
Project Completion

100%
Obligation and Disbursements

Challenges Encountered:

- The project included a fuel allowance; however, due to the unavailability of CSU vehicles, the team opted for van rentals. This shift complicated the procurement process, necessitating additional approval for the PPMP.
- Funds for the teachers and students' food during the training and outreach project

Opportunities:

- Partnership of the CSU Alumni to provide funds for the food to the participants of the project
- Research collaborators from DepEd

Ways Forward:

- Find more partners and funding agencies to fund the project.
- The outputs and data collected from the extension project must be compiled and documented as a research report for publication in a Scopus-indexed journal.

Status of Extension Projects Implementation

HITSAS-TULAY (Tuyhakaw sa Kabatan-onang Lumad)

The quarter began with a seminar on child abuse aimed at raising awareness of relevant laws and promoting community involvement in prevention and response efforts. This was followed by Values Formation and Parent-Child Encounter sessions, which targeted youth and their parents while integrating Gender and Development (GAD) concepts. Concurrently, a GAD core group was established to enhance community engagement

After completing the social preparation phase, the focus shifted to developing a localized GAD Manual, which will serve as the foundation for activities planned for the remainder of the project. The quarter concluded with a Memorandum of Agreement (MOA) signing, marking the successful culmination of this year's project activities.

Crafting a Customized Training Manual for GST: Empowering Local Understanding- November 21-22, 2024



The signing of the Memorandum of Agreement (MOA) with the Barangay LGU of Baan Km. 3 marks a significant milestone in supporting project activities.



79%
Project Completion

96%
Obligation and Disbursements

Challenges Encountered:

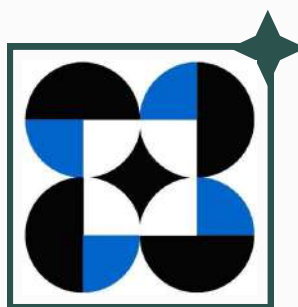
- The project lacks clear indicators for measuring progress.
- The project leader and two members have not been issued a Special Order (S.O.).
- The project's budget only covers the first year of implementation

Ways Forward:

- Develop clear Key Performance Indicators (KPIs) and a Monitoring and Evaluation (M&E) framework to effectively track progress.
- Expedite the issuance of Special Orders (S.O.) for the project leader and members.
- Create a scholarly proposal to secure additional funding.

List of Externally-funded Research & Extension Projects

- Integrated Approach in Management of Major Biodiversity Corridors in the Philippines
- Farm to Market Road Impact Analysis (FAMRIA)
- Prototype Enhancement and Testing: Of Village-Level Sago Pith Extracting Machine by Caraga State University from Butuan City, Agusan del Norte
- Financial Literacy Training For The Municipality Of Bayabas, Cortez, Lanuza, Tago, Bacuag, Gigaguit, Mainit, Malimono, Sison, Tgana-An, And Tubod Farmers And Fisherfolks In Surigao Del Norte And
- Joint Delivery Voucher Program
- CaraGALING: Caraga's Generator of Advancement, Linkages, and Innovations for Nurturing Growth in Technology Awareness and Adoption
- Enhancement of Greenhouse Gas Inventory and Mitigation in Cattle in the Philippines
- Combine Rice Harvester and Tractor to improve Rice Production in Caraga State University
- Milk Feeding Program for Dep Ed Learners
- Comprehensive Assessment for Reinforcing Equity in Screening for Breast Cancer (CARES)
- Farm and Fisheries Clustering and Consolidation (F2C2)

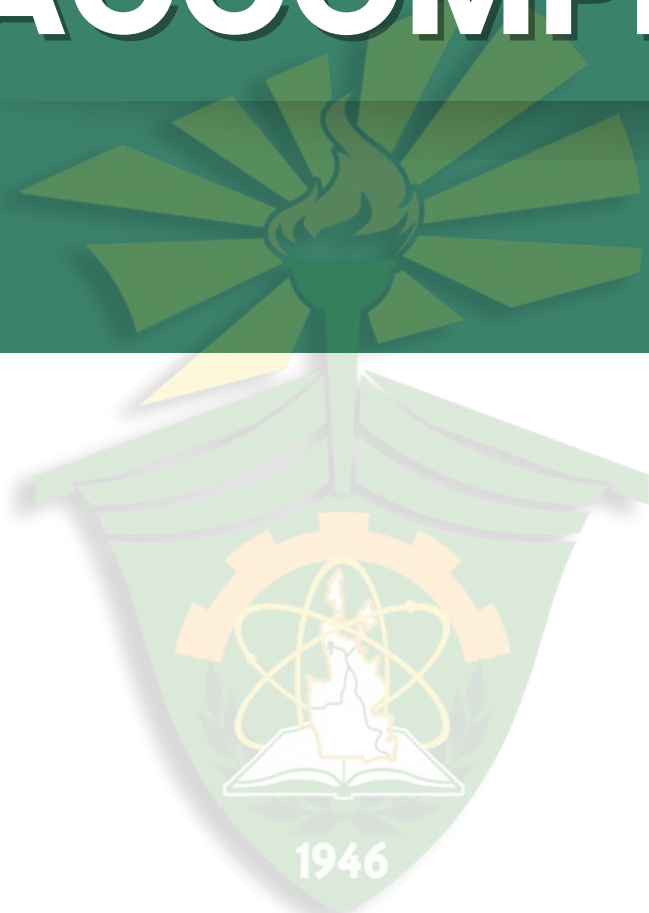


67M
External Funds generated for 2024 Research & Extension Projects

The university has secured **107** million in project funds over the last four quarters, encompassing both GAA funding and externally funded projects.



HIGHLIGHTS OF ACCOMPLISHMENTS



CARAGA
STATE UNIVERSITY
PHILIPPINES

Caraga State University is a 4-time ITSO Platinum Awardee

Caraga State University (CSU) obtained its fourth consecutive Platinum Award from the Innovation and Technology Support Offices (ITSO) during the ITSO Presidents' Summit in Makati City on March 19, 2024.

The Platinum Award is the highest honor given to the most productive ITSOs in the country as a recognition of their exceptional contributions to intellectual property rights and technology advancement.

CSU joins three Caraga-pride recipient SUCs of the same award: North Eastern Mindanao State University (NEMSU), Surigao del Norte State University (SNSU), and Agusan del Sur State College of Agriculture and Technology (ASSCAT). Such a feat signifies the SUCs' commitment and dedication to nurturing innovation, protecting intellectual property, and driving favorable change in the country.



From left – right: CSU President, Dr. Rolyn Daguil; IPOPHL Director General, Atty. Rowel Barba; CSU VPRIE, Dr. Jeffrey T. Dellosa; and CSU ITSO Manager/ TTLO Director, Prof. KL Ciudad.

Advancing Research Excellence: Highlights from the 1st International Multidisciplinary Research Conference

The 1st International Multidisciplinary Research Conference, themed “Warranting a Future-proof Society through Academic and Research Innovations,” took place on April 17–19, 2024, at the Quest Plus Conference Center in Clark Freeport Zone, Clark, Philippines. This landmark event brought together faculty and student researchers from across the country, with 84 delegates representing 35 institutions, including participants from distant regions such as Cagayan and Camiguin.

The conference served as a platform for presenting groundbreaking research both onsite and virtually. It facilitated the exchange of ideas among academicians, practitioners, and stakeholders while fostering networks and partnerships among higher education institutions. The event featured plenary lectures by distinguished speakers, including Dr. Marie Paz Morales of Philippine Normal University and Dr. Linda Jean Kenix of the University of Canterbury.

A notable achievement was the recognition of Caraga State University researchers—Dr. Flordeliza G. Alburo, Mr. Ryan Chester G. Fong, Ms. Nicole M. Bajamundi, and Ms. Meconcepcion N. Lansang—who received the Best Paper Award in Person Presentation – ABLESS Category for their study titled “Impact Assessment of Extension Program: A Pivotal Action in Enhancing Community Engagement.”



This conference underscored the importance of multidisciplinary research in addressing societal challenges and preparing for a rapidly evolving future through academic innovation.

AWARDS AND RECOGNITIONS

CSU Secures Four (4) Patent Grants & One (1) Utility Model in 2024

Caraga State University (CSU) is celebrating significant milestones in innovation and research, highlighting its commitment to technological advancements and real-world impact. In 2024, CSU was granted four patents for groundbreaking technologies, reflecting years of dedication and perseverance, with some innovations initially filed as early as 2020.

These patents focus on enhancing agricultural productivity, food security, and environmental sustainability. Additionally, CSU received a Utility Model Grant for its innovative Herb-Fruit Blend, underscoring the university's emphasis on research excellence and practical applications.

These achievements demonstrate CSU's commitment to empowering innovators and researchers, positioning it as a leader in regional innovation. As CSU moves forward, it continues to foster a culture of innovation, shaping a better future through technological advancements and collaborative research partnerships.



Professional Golden Paddler wins national pitching contest on agri-aqua innovation



Engr. Lord Boy Silong, a Technical Expert at the university's Technology Transfer and Licensing Office (TTLO), won first prize at the Agri-Aqua Innovation Pitch Fest 2024, held on August 16, 2024, at the Royce Hotel in Clark Freeport Zone, Pampanga.

He demonstrated his innovative competence by pitching the Sago Pith Extracting Device, an invention developed by the Department of Agricultural and Biosystems Engineering faculty.

Competing against 17 talented participants from across the country, Engr. Silong's pitch stood out for its originality, practicality, and potential impact on the agricultural sector. His victory highlights the university's commitment to promoting innovation and entrepreneurship and showcases the dedication and talent of its faculty and staff.

The Agri-Aqua Innovation Pitch Fest is a prestigious event organized by the Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) in collaboration with various state universities and colleges across the Philippines.

Aside from his Php 10,000.00 prize money, Engr. Silong was also awarded Php 5,000.00 from the Office of the Vice President for Research and Development, Innovation, and Extension during the university's flag ceremony on August 19, 2024.

AWARDS AND RECOGNITIONS

Academic Excellence Shines: Caraga State University's Sanchez and Burias Win Best Paper and Best Presenters Awards

Engr. Philip Donald Cabuga Sanchez and his team for being awarded BEST TECHNICAL PAPER in the recent 20th International Agricultural and Biosystems Engineering Conference held at Legazpi City, Albay, last April 22-26, 2024.

Engr. Sanchez is an affiliate faculty researcher and the previous Center Director of CSU-CReATe.



The Department of Biology (DoB) is proud to announce the recognition of Mr. Nick Anthony Burias as Best Presenter during the 56th Annual Convention of the Federation of Institutions of Marine and Freshwater Sciences, Inc. (FIMFS), held on October 22-24, 2024, at Davao Oriental State University. In addition, the paper titled "Taxonomy and Distribution of Intertidal and Littoral Ribbon Worms (Phylum Nemertea) in Selected Areas of the Caraga Region, Mindanao, Philippines," authored by DoB faculty, students, and collaborators, also won the Best Paper award at the convention. With the theme "BLUE Harmony: Regenerating Our Aquatic Worlds," the FIMFS Annual Convention aimed to "foster impactful and productive discussions, promote collaboration, and catalyze positive change in the field of marine and freshwater ecosystems research and conservation."



AWARDS AND RECOGNITIONS

CSU honors exemplary employees in PASIDUNGOG 2024

The PASIDUNGOG 2024, Caraga State University's Program on Awards and Incentives for Service Excellence (PRAISE), formally commences on October 4, 2024, at The Pavilion at Watergate, Butuan City, gathering exemplary employees from the Main and Cabadbaran campuses who actively contributed to the university's goals in academic service, innovation and service.

Jeffrey T. Dellosa, D.Eng., VP for Research, Development, Innovation, and Extension and PRAISE Chairperson, welcomed the awardees and highlighted the event as a "collective reflection of shared vision and commitment to inspiring change and fostering a culture of excellence."



In his keynote message, University President Rolyn C. Daguil, PhD, reflected on the fulfillment of the LIKHA agenda, which he described as the anchor for the university's evolution: "PASIDUNGOG embodies the realization of LIKHA agenda. Guided by our agenda, we will continue pushing the boundaries of what is possible for CSU to leave a lasting impact on our community, region, and the world."

This year's PASIDUNGOG centers on: "Celebrating a Year of Leadership, Innovation, Knowledge Management, Honor, and Achievements." Two hundred thirty-seven (237) individual and group awards will be given this year, which are categorized into (1) Loyalty, (2) Retiree, (3) Academic Excellence, (4) GWA, (5) Best Extension Service, (6) Publication, (7) Best Research and Development Project, (8) Innovation and Patent, (9) Book Writing, (10) Cost Economy Measure, (11) Best Employee, and (12) LIKHA Excellence (Presidential) and (13) Special citations.

AWARDS AND RECOGNITIONS

CSU launches LIKHA Excellence Awards, inaugural awardees recognized

Associate Professor Melbert R. Bonotan of the College of Computing and Information Sciences (CCIS) is this year's champion.

Professor Bonotan initiated and championed various capacity-building programs in entrepreneurship and guided the incubation of 47 startups. Aside from his contributions at Navigatú, he forged partnerships with local and international stakeholders and established the Caraga-RISE consortium, revitalizing the region's startup ecosystem.

As a seasoned coach, Mr. Bonotan mentored the students behind the startup Scrapcycle, which secured 3.2 M funding from DOST. He also led teams to victory in DICT's Philippine Startup Challenge, obtaining regional championship from 2021 to 2023 and a national championship in the Development Academy of the Philippines' START Hackathon with 150,000 pesos in cash and seed funding.

Under his leadership, TARA was established. This is the second Technology Business Incubator of CSU, which focuses on agriculture and aquaculture startups and currently supports 14 incubatees. With TARA, he secured eight key local and international partnerships that further solidified the office's role in driving innovation and growth in the region. His remarkable contributions align with CSU's mission and strategic goals, earning him the prestigious LIKHA Champion award.



AWARDS AND RECOGNITIONS

CSUCC Wins Champion and Best Pitcher at National Energy Startup Competition

The CSUCC Energy and Power Research and Innovation Center Chief, Engr. Erickson A. Tacda and his team won the Grand Champion and Best Pitcher awards at the New Energy Nexus Philippines – Ready, Spark, Charge: Hacking the Future of Energy 2024 competition, held from November 14–16, 2024, at Miriam College, Quezon City.

The competition, focused on energy and climate entrepreneurship, aims to inspire and accelerate ventures addressing energy challenges. Engr. Tacda and his team's collaborative efforts landed them the top prize, while Engr. Tacda's pitching skills earned him the Best Pitcher Award.



On the other hand, the **BayaniBlue Aquaculture Solutions** team from Caraga State University Cabadbaran Campus (CSUCC) achieved remarkable success at the Global Agribusiness Management and Entrepreneurship Conference 2024 held at SMX-MOA. They emerged as Champions in the Poster Competition and secured the First Runner-Up position in the Pitching Competition. These accomplishments highlight their innovation and dedication to agribusiness, showcasing the potential of young entrepreneurs in the field.

This recognition not only reflects the team's hard work but also underscores CSUCC's commitment to fostering talent and promoting sustainable practices in aquaculture. The achievements at this prestigious conference serve as an inspiration for future initiatives within the university and the broader agricultural community.



AWARDS AND RECOGNITIONS

STELLA.AI Elevates CSU at Philippine Startup Challenge 9 |



Navigatu TBI incubatee, **STELLA.ai**, proudly raised the Caraga State University (CSU) flag by securing the 3rd Runner-Up position at the **Philippine Startup Challenge 9 National Pitching Competition**. This achievement marks Navigatu's first placement after four consecutive appearances in the national finals, signifying a significant milestone for CSU in the startup ecosystem.

Composed of **Francis John Saul Tin-ao**, **Rhea Bete**, and **Angelo Galope**, and guided by their mentor, **Mr. James Earl Cubillas**, the STELLA.ai team aims to revolutionize stroke detection using advanced artificial intelligence technology. Their innovation offers a groundbreaking solution, enabling faster and more cost-effective diagnosis for stroke patients, which could significantly improve healthcare accessibility and outcomes.

With this commendable achievement, STELLA.ai will receive \$5,000 worth of Amazon Web Services credits, generously awarded by Mr. Carlo Calimon of Startup Village, further supporting their innovation journey and scaling efforts.

The STELLA.ai team was accompanied by DICT-Caraga Regional Director Mario Cuñado and Mr. Dean Joshua Solis, the DICT-Caraga Project Development Officer, who provided valuable support throughout the competition.

This victory highlights the ingenuity and dedication of STELLA.ai and underscores CSU's growing influence in the national startup landscape through its TBI initiative.

AWARDS AND RECOGNITIONS

Herb-Fruit Blend Wins 2nd Place at 7th Caraga Health Research Conference



Dr. Erlin S. Rodas and her dynamic team from the College of Tourism and Hospitality Management (CTHM) achieved 2nd place in the Professional Category of the "3-Minute Pitch to Policymakers Contest" at the 7th Caraga Health Research Conference, held on November 13, 2024, at Almont Inland Resort, Butuan City. Their innovative project, "Herb-Fruit Blend," which is already a grantee of a utility model, aims to develop a potent beverage for dengue prevention. Dr. Rodas and her talented team members—Alecris V. Gregorio, Richel Pitogo, Arvin John Pene, Chaira D. Jamero, Nancy G. Medina, and Judisa I. Salalima—effectively presented the health drink's potential to influence public health policy.

This achievement reflects the unwavering support from the CSUCC RDIE and the entire Caraga State University Cabadbaran Campus (CSUCC) community. Their encouragement and resources have been crucial in advancing this research, underscoring the university's commitment to fostering innovative health solutions for the region.

Caraga State University as the DSWD's Best Program Partner



The Caraga State University was recognized as the Best Program Partner-NGA/NGO for commendable support and exemplar contribution to Sustainable Livelihood Program for CY 2024 and received trophy of Kabalikat Award under Public Partner Category as Most Outstanding Partner. This given on 13th day of December at Doties Place, Butuan City. The event was attended by our Extension Director Dr. Romell A. Seronay together with TTLO/ITSO Chief Charisse D. Galusan.

DOST CALL CONFERENCE 2024

*January 18, 2024; Lim Ket Kai Luxe Hotel,
Cagayan de Oro City*



Caraga State University's Research, Development, and Innovation (RDI) Unit attended the 2024 Mindanao Call Conference, organized by the Department of Science and Technology (DOST) held at the Limketkai Luxe Hotel, Cagayan de Oro City, last January 18, 2024. The DOST conference commenced with traditional ceremonies and introductory remarks by key DOST figures, including Engr. Romela N. Ratilla, DOST Region X Director, and Dr. Leah J. Buendia, DOST Undersecretary for Research.

The CSU contingent was led by Dr. Jeffrey T. Dellosa, the Vice President for Research, Innovation and Extension with Dr. Sherryl Lipio Paz, Research Services Director, and a select group of RDI Center Directors from the university, namely Prof. Alvin Sevilla (CSUCC RDIE Director), Dr. Jaymer Jayoma (CHCI Director), Dr. Jayrold Arcede (MSCRC Director), Mr. Leo Jude Villasica (CaragaCARE), and Engr. Erickson Tacda (CEPRIC Director). Others present Dr. Alexander T. Demetillo, VP for Administration and Finance, Ms. Charisse D. Galusan and Mirasol Jane Beray (both CIPC/Research & Extension Coordinator).

The objective of the attendance to the Mindanao Call Conference was for the CSU RDI Centers to prepare their project proposals and align them to the DOST's thrust and priorities. This strategic participation underscores CSU's commitment to enhancing its research capabilities and contributing significantly to regional and national development goals. The conference served as an invaluable platform for CSU's RDI Centers to gain insights, foster collaborations, and align their research initiatives with the broader objectives of the DOST.



CSU delegates with the DOST Undersecretary for Research, Dr. Leah J. Buendia, and DOST PCIEERD Executive Director, Dr. Enrico Paringit.

A highlight was the keynote address from DOST Secretary Dr. Renato U. Solidum Jr, represented by Dr. Buendia. The conference showcased GIA-funded projects from various Mindanao State University campuses, underscoring the region's scientific endeavors. Experts delved into the Council's priority areas across diverse fields, from basic research to industry-specific innovations. The event also included a practical session on proposal submissions led by Ms. Armela K. Razo, enriched by interactive Q&A segments.

The afternoon sessions were dedicated to specialized breakout discussions and administrative orientations, culminating in summarizing remarks. This conference was instrumental in fostering collaboration and advancing scientific research within the Mindanao region.

The CY 2024 Mindanao Call Conference was a comprehensive gathering emphasizing the collaborative spirit in scientific research and development. The event showcased various GIA-funded projects, highlighting the innovative work emerging from Mindanao State University's campuses. These presentations underscored the research's diverse and dynamic nature across various sectors, including health, agriculture, and emerging technologies. Interactive sessions on proposal submissions and administrative requirements provided practical insights for participants, fostering a deeper understanding of the DOST's operational frameworks. The conference, with its mix of informative presentations and engaging discussions, played a crucial role in uniting the scientific community in Mindanao, encouraging cross-disciplinary cooperation, and driving the region's research ambitions forward.

RESEARCH & DEVELOPMENT, INNOVATION & EXTENSION AGENDA SETTING

*July 17–19, 2024; HERO Activity Loft
Caraga State University*



Caraga State University (CSU) is taking proactive steps to envision a sustainable, inclusive, and resilient region by convening partner agencies to discuss and harmonize its research and development agenda for 2025–2030. Dr. Jeffrey T. Dellosa, Vice President for Research, Extension, and Innovation, emphasized the university's pivotal role in driving research initiatives in Caraga. By leading knowledge generation and application efforts, CSU aims to address local challenges in collaboration with its partners.

The assembly seeks to align its objectives with several key frameworks, including the Philippine Development Plan 2023–2028, the Caraga Regional Development Plan, the Sustainable Development Goals (SDGs), DOST's Harmonized Research Agenda, and CSU's LIKHA Agenda. This alignment will ensure that CSU's research efforts contribute to broader national and regional goals.

The Research Development Innovation and Extension (RDIE) Agenda Setting took place from July 17–19 at the HERO Learning Commons. During this event, participating offices and local government units presented their initiatives and engaged in workshops to identify research gaps and outline future directions. This collaborative approach fosters a comprehensive understanding of regional needs while enabling stakeholders to contribute effectively to the development agenda.

GEOSPATIAL TECHNOLOGIES FOR EARTH MONITORING SYMPOSIUM (GEO-STEMS)

*August 9, 2024; HERO Auditorium
Caraga State University*



CSU launches GEO-STEMS with International Experts in Geospatial Technologies

The Caraga Center for Geo-informatics (CCGeo) successfully hosted the first Geo-Spatial Technologies for Earth Monitoring Symposium (GEO-STEMS) 2024 at Caraga State University's HERO Learning Commons. Themed "Advancing Sustainable Agriculture and Ecosystem Management through Remote Sensing and Other Geospatial Technologies," the event featured presentations from international experts, including Dr. Christian Heipke from Leibniz University Hannover and Dr. Mitsunori Yoshimura from Nihon University. Local contributors from CSU also shared insights. The symposium drew representatives from various institutions and stakeholders, including ASSCAT, CMU, and DOST Caraga.



A Memorandum of Understanding with Leibniz University Hannover was signed, paving the way for future collaborations. The event was streamed live on Zoom and Facebook Live, enhancing global participation.

2ND LIKHA SUMMIT

(SciTech4Dev 2024)

October 28–30, 2024; HERO Learning Commons
Caraga State University

The LIKHA Summit 2024 is a highly anticipated event hosted by Caraga State University (CSU) from October 28–30, 2024, with the theme **"Innovating for the Sustainable Future: Research, Development, Innovation, and Extension in Practice"**. The summit serves as a platform for thought leaders, innovators, researchers, and educators to engage in meaningful discussions about the future of research, development, and innovation, particularly in the context of creating sustainable solutions for local, national, and global challenges.

The LIKHA Summit featured distinguished speakers from various fields, including education, research, technology, and policy leaders. Notable speakers include:

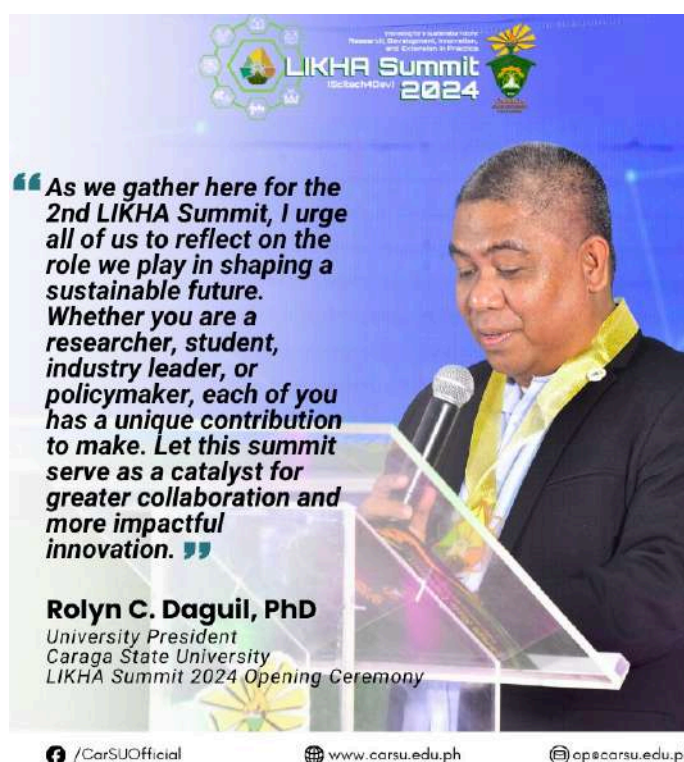
- **Dr. Angelo Jimenez**, President of the University of the Philippines (UP) System, provided insights on leadership in higher education and the role of universities in shaping innovation and societal progress.
- **Dr. Napoleon Juanillo**, Assistant Secretary for Technology Transfer, Communications, and Commercialization at the Department of Science and Technology (DOST), discusses the critical intersection of research, technology, and commercialization, and how these can drive economic and social development.
- **Dr. Danilo Lachica**, President of Semiconductor and Electronics Industries Philippines Foundation, Inc. (SEIPI), shared his knowledge on Driving Sustainable Development through Innovation: The Future of the Electronics and Semiconductor Industry in the Philippines
- **Dr. Nilo Bugtai**, an expert in biomedical engineering and robotics, shared his knowledge on healthcare innovation and the future of precision medicine.
- **Dr. Oslan Jumadi**, from Universitas Negeri Jakarta in Indonesia contributed an international perspective on Harnessing Biotechnology for Sustainable Development: Innovations Driving Resilient Food Systems and Environmental Conservation.

TRAINING, WORKSHOPS, AND CONFERENCES

2ND LIKHA SUMMIT

The 2nd LIKHA SUMMIT formally opened on October 28, 2024, at Caraga State University. The summit is CSU's platform for exploring and promoting innovations for sustainable development through research, development, and innovative practices, following the scheme of SciTech4Dev.

Vice President for Research, Innovation, Development, and Extension (VPRDIE), Dr. Jeffrey T. Dellosa, welcomed the attendees and guests and highlighted the critical role everyone plays in pushing for change through research and innovation. He also related this year's theme, which is "Innovating for a Sustainable Future: Research, Development, Innovation, and Extension in Practice," to the 'Futures Thinking' approach by anticipating trends, disruptions, and challenges through strategic, sustainable research.



University President Dr. Rolyn C. Daguil delivered his LIKHA message, emphasizing CSU's commitment to innovation and sustainable development through research that translates into meaningful and scalable solutions for society and aligns with national goals for sustainable development.



From L-R: Dr. Jeffrey T. Dellosa, VPRDIE, along with the Plenary Speakers, Dr. Nilo T. Bugtai, ASEC Napoleon Juanillo, Jr., Dr. Oslan Jumadi, and University President, Dr. Rólyn C. Daguil, during the 2024 LIKHA Summit.

Keynote speakers in the opening ceremony included UP System President Atty. Angelo Jimenez and SEIPI President Dr. Dan Lachica. In their pre-recorded messages, Atty. Jimenez called on higher education institutions (HEIs) to be not only centers of learning but also key drivers of social change. Dr. Lachica also emphasized the critical role of innovation and collaboration in advancing the electronics and semiconductor sectors.

DOST Assistant Secretary Dr. Napoleon K. Juanillo, Jr., also graced the summit to introduce DOST's Program PROPEL. He further encouraged heightened innovative enterprises that have great potential to thrive on the global scene.

Following the opening ceremonies were plenary sessions with distinguished speakers exploring themes on innovation for sustainable futures, artificial intelligence, robotics, health, and biotechnology, futures thinking and strategic foresight, and technopreneurship and knowledge commercialization.

The summit's RAISE to Innovate, a regional pitching competition for professionals, also started with their pre-event activities at Hiraya Hall in the afternoon. The day concluded with a Fellowship Night and performances from the Kayam Ethno Band and Dulimbay Theater Arts Guild.



The Three (3) Sub-Conferences happened during the 2nd Day of the LIKHA Summit

The three sub-conferences, LIKHA-DUNONG, International Computing and Information Sciences (CISCon), and Regional Climate Change Action and Innovation Forum commence on the second day of the event. All conferences ran simultaneously, covering various fields aligned with the LIKHA Agenda.

The LIKHA-DUNONG aims to foster critical dialogue, ideas, and scholarly collaboration across diverse areas such as Language, Society and Culture, Lifelong Learning, Literacy, Music, Arts, Physical Education, and Health Education.

The 3rd International Conference on Computing and Information Sciences (CISCon 2024) brought together experts, educators, and innovators with a unified goal: to advance digital technology, making it smarter, more sustainable, and accessible to all.

The first Regional Climate Change Action and Innovation Forum centered on “Envisioning Resilient Futures: Strategic Foresight for Climate Action in the Caraga Region and Beyond.” The forum was a dynamic platform for insightful discussions, expert presentations, and collaborative sessions to address climate change through innovation and strategic planning.



ALZEI Sensor by Rey Marc T. Cumba as the Winning Pitch during the LIKHA Summit Pitching Competition

The LIKHA SUMMIT 2024 formally wrapped on October 30. The third day featured a pitching competition for innovative concepts and solutions to societal problems, fulfilling the objective of the summit as a platform to explore innovations through R&D and technology development.

This year's RAISE TO INNOVATE Pitching Competition included 12 finalists with innovative concepts on agriculture, fishery, health and nutrition, food technology, merchandising, and the electric industry. Before the final pitching, all 29 teams who submitted entries underwent workshops on business model.

The winning pitch, ALZEI Sensor by Rey Marc T. Cumba, proposes developing a noninvasive early detection kit for Alzheimer's disease. It received the grand cash prize of Php 25,000, while the first and second runners-up received Php 15,000 and Php 10,000, respectively.

Aside from the cash prizes, at least five (5) teams were committed with potential funding support from representatives of government agencies who sat as panelists.

As echoed by CSU Vice President for Research, Development, Innovation, and Extension Jeffrey T. Delloso, D.Eng., in his message, the pitching competition recognizes the value of technology development in addressing pressing issues, which CSU is also committed to as it strengthens its innovation and entrepreneurship pursuits.



OVPRDIE STRATEGIC PLANNING WORKSHOP

*December 3–4 & December 12–13, 2024
Caraga State University*

The OVPRDIE Strategic Planning workshop, led by Dr. Jeffrey T. Dellosa, Vice President for Research and Development, Innovation, and Extension, focused on creating a comprehensive Research and Development, Innovation, and Extension Agenda for 2025–2030. This agenda aims to align with key frameworks such as the Philippine Development Plan and the University's LIKHA Agenda, ensuring that the institution's strategic direction supports national and regional development goals.

Mr. Clark Aries Ingles, Chief of the Strategic Foresight Division, presented findings from an earlier RDIE Agenda Setting session, which informed the development of an initial Vision Statement through collaborative group exercises. Dr. Junrie B. Matias led a session on the Ethics Manual, discussing ethical considerations in research initiatives and noting that the Implementing Rules and Regulations (IRR) based on this manual are still being formulated.

Participants also explored various themes of the RDIE Agenda and focused on formulating the RDIE Framework, guided by examples presented by Prof. Joey Arles Vergara.

TRAINING, WORKSHOPS, AND CONFERENCES

After extensive brainstorming, discussions, and deliberations, the group reached a consensus on a proposed Vision Statement that conveys a powerful message in support of the University's goals.

VISION

CSU as a globally renowned RDIE institution for transdisciplinary research in promoting sustainability and advancing innovative and entrepreneurial ecosystems towards inclusive socio-economic development in the country by 2030.

OVPRDIE STRATEGIC PLANNING WORKSHOP

On the second day of the activity, Mr. Caingles emphasized the formulation of the RDIE Framework, outlining its essential components. He stressed that the framework should provide clarity, enabling complex ideas to be easily understood and communicated. It must maintain focus by aligning efforts with defined goals, ensuring that activities target specific outcomes. Consistency is crucial for effective implementation across various initiatives, while the framework also serves as a decision-making tool for prioritization and resource allocation, aiding stakeholders in making informed choices. Furthermore, it enhances communication among stakeholders, fostering collaboration and engagement.

Prof. Joey Arles Vergara presented various examples that illustrated effective strategic planning methodologies relevant to the university's context. Below is the working RDIE Framework subject for enhancement.



RDIE Framework subject for enhancement

The second workshop focused on identifying the main agenda and sub-themes. Participants successfully collaborated to outline and define the proposed agenda themes, which are as follows:

01. *Sustainability & Resilience*



04. *Environmental Stewardship*



02. *Healthy & Quality Living*



05. *Entrepreneurial Growth*



03. *Food Security*



VP Dellosa suggested issuing a Special Order to focus on developing the RDIE Agenda Sub-Themes, which would facilitate a more structured approach to achieving the organization's goals.

The discussions and presentations throughout the event provided a clear direction for future initiatives, promoting a collaborative environment to achieve shared goals and enhance RDIE impact within the community.

**RESEARCH, DEVELOPMENT
& INNOVATION SERVICES**

RESEARCH, DEVELOPMENT, AND INNOVATION SERVICES



RESEARCH, DEVELOPMENT & INNOVATION SERVICES

INTRODUCTION

The various Research, Development, and Innovation Centers in the university have made significant strides in their accomplishments, showcasing their commitment to advancing knowledge and promoting collaboration.

Training and Capacity Building

Throughout the year, numerous training sessions and workshops were conducted to enhance the skills of faculty, students, and industry partners. These sessions focused on emerging trends in research methodologies, innovative practices in various fields, and the application of new technologies.

Establishment of Linkages

The centers have actively partnered with local and international institutions to promote collaborative research and innovation. These linkages have enabled the sharing resources, expertise, and best practices. Notable collaborations include partnerships with government agencies such as the Department of Science and Technology (DOST), the Department of Agriculture and various universities, which have enhanced the centers' capabilities to address regional challenges effectively.

Scholarly Works and Research Outputs

Significant scholarly works have emerged from these centers, contributing to various fields of study. Research outputs include published papers in reputable journals, presentations at national and international conferences, and innovative projects aimed at solving pressing societal issues.

In summary, the achievements of the Research, Development, and Innovation Centers underscore their vital role in promoting innovation, enhancing education, and contributing to sustainable development through training, partnerships, and impactful research.



PROGRESS INDICATOR VIS-A-VIS SPECIAL ORDER

PERFORMANCE INDICATOR	TARGET	ACCOMPLISHMENTS
Percentage of GS faculty engaged in research work actively pursuing in the last three (3) years	60%	86.52%
Total research funding obtained from the public and private sector partners increase revenue from Income-Generating-Projects – Combined for all	25M	67M
Number of Scopus-indexed journal publication as either main or co-author (on top of the professorial rank) – combined for all RDI Centers.	15	67
Average utilization rate of allocated funds for research and development (for all funding: GAA, IGF and others, i.e. DOST, CHED)	90%	29.81%
Number of patent, utility model, industrial design, or other Intellectual Property (i.e. copyright) application – combined for all RDI Centers.	15	6
Number of research collaborations established with ther agencies and/ or academic instatutions and with active MOA/MOU	15	19

PROGRESS INDICATOR VIS-A-VIS SPECIAL ORDER

PERFORMANCE INDICATOR	TARGET	ACCOMPLISHMENTS
Number of Scopus-indexed journal article from an affiliated faculty member of the RDI Center with an international author.	15	22
Number of research outputs completed within the year (i.e. from either GAA or externally-funded projects; or students' thesis projects packaged with scholarly work with project proposal registered at OVPRIE)	65	17
Number of research outputs utilized by the industry or by other beneficiaries	15	8
No. of research projects proposed, directed, mandated, or focused on CSU internal challenges or priorities, and implemented within the year.	15	10
No. of implemented research projects/ programs pertaining to agri-food systems (combined target for all R&D Centers)	4	6
BOR approved Research Manual and presence of Ethics Board (combined target for all R&D Centers)	1	-
Percentage of Research outputs published in internationally refereed or CHED recognized Journal within the year (combined target for all R&D Centers).	40%	74.85%

CSU RDI Centers Join Caraga Regional Development Plan 2023-2028 Provincial Caravan



The photo highlights the participation in the Caraga Regional Development Plan 2023-2028 Provincial Caravan hosted by the National Economic and Development Authority (NEDA) Caraga on January 31, 2024, at Almont Hotel, Butuan City.

Engaging in caravans, exhibits, and various activities is just one facet of the initiatives undertaken by the office through the RDI Centers to enhance awareness and education. These endeavors serve as proactive approaches to disseminating information about technologies and their potential benefits. Beyond merely showcasing technologies, these initiatives create opportunities for interactive learning and dialogue, facilitating a more comprehensive grasp of the importance of intellectual property in various fields.

CSU is widely recognized for its commitment to advancing research and development in agriculture, aquatic, and natural resources. At the event, we highlighted our contributions to the regional developmental landscape, emphasizing our support for the i2FAME initiative and our alignment with the broader goals of the Caraga RDP.

Taking place at the Almont Inland Resort in Butuan City on January 31, 2024, the event aimed to disseminate the development priorities and strategies outlined in the Caraga RDP to a range of stakeholders, including Regional Line Agencies, Local Government Units, academia, industries/private sector, and concerned individuals.

CARAGA RISE Leads ReSEED Consortium in Driving Startup and Innovation Growth



The photo highlights the participation in the Program Launching of ReSEED: CARAGA Regional Innovation and Startup Ecosystem (RISE) on January 30, 2024, at HERO Learning Common, Caraga State University.

The university's ReSEED: CARAGA Regional Innovation and Startup Ecosystem (RISE) held its consortium presentation yesterday, January 30, with Caraga's Higher Education Institutions (HEIs), key government agencies, and Wadhwani Foundation to propel startup initiatives and innovative strategies in shaping the region's future.

The activity featured detailed presentations, including MOA Signing, Strategies Planning, Advisory Board formation, RDP for startup ecosystem development (focusing on Mentor pool development), Roadmap delineation, and RDC Resolution. Each of these components underscored the consortium's concerted efforts and strategic planning for the region's sustainable growth of startup initiatives.

Four esteemed HEIs in the region – Agusan del Sur State College of Agriculture and Technology (ASSCAT), Father Saturnino Urios University (FSUU), North Eastern Mindanao State University (NEMSU), and Surigao del Norte State University (SNSU) – gathered in a series of thought-provoking discussions with support from key government agencies in the Caraga region, namely the National Economic and Development Authority Caraga (NEDA), Department of Science and Technology – Caraga Region (DOST), Department of Information And Communications Technology – Caraga Region (DICT), Department of Trade and Industry – Caraga Region (DTI), and Department of Agriculture – Caraga Region (DA). The activity targets a robust Startup Ecosystem in the Caraga Region.

Caraga Food Innovation Center Participates in the Food Innovation Center Summit



The photos highlight the participation of Mr. Genesis Jared A. Cutamora, FIC Director in the conduct of the Food Innovation Summit at the Manila Hotel on February 15, 2024.

The Department of Science and Technology (DOST) through Industrial Technology Development Institute (ITDI) in cooperation with DOST Regional Offices and Regional Food Innovation Centers ongoing the event with the theme, **“Flavors of Progress: under the DOST-GIA project entitled ‘Technical Support for DOST RFICs’** on February 15, 2024, at Centennial Hall A, The Manila Hotel, Metro Manila.

From Caraga, was attended by Genesis Jared A. Cutamora from Caraga State University where the Center hosted and Engr. Emman Liam Prisco from the DOST Regional Office. Part of the event is to showcase the accomplishments of the various FIC-related projects implemented and supported by DOST and serves as an opportunity to network and witness the sharing of best practices among FICs.

Caraga RAISE Program Wraps Up Successful Regional Communication Plan Workshop



The photos highlight the conduct of the Regional Communication Plan last March 11-12, 2024, at the CSU HERO Boardroom.

Caraga State University's RAISE Program recently held a two-day workshop on Regional Communication Plan Development at the CSU HERO Learning Commons. Led by Prof. Kenneth L. Ciudad and Prof. Meycel C. Amarille, the event brought together staff from various RAISE projects, CSU research institutions, and partner universities. Participants refined their communication strategies under the guidance of Ms. Renalyn G. Padoginog, emphasizing transactional communication and shared understanding.



The workshop underscored CARAGA RAISE's commitment to enhancing technology commercialization in the region.

Innovation Express: From Search to Draft



Participants during the Patent Search and Drafting held on April 22–24, 2024, at the HERO Board Room, Caraga State University

On April 22–24, 2024, the RAISE Project 1. IPTBM conducted a training workshop attended by 11 participants composed of RDI Center Directors/representatives and a few College IP coordinators (CIPC). This activity aimed to enhance awareness regarding all facets of Intellectual Property (IP) rights among university researchers, academics, and undergraduates.

The activity consisted of a series of informative lectures and application exercises. The participants were given time to independently engage in their work at their own pace, especially in patent drafting but with the guidance of the experts in the field. The participants actively participated in the exercises and interacted with resource speakers namely, Prof. Kenneth L. Ciudad, Engr. Jayson Loreto, Engr. Juven G. Luzorata, Engr. Sherwin M. Boholano, Engr. Lord Boy Silong, and Engr. James Audrey Guian G. Rulona

At the end of the session, RDI center Directors and Representatives presented their prior art search, technology disclosures, and the patent draft with claims, showcasing their dedication to innovation and IP protection.

Regional Review of Institutional Intellectual Property (IP) Policy and Technology Transfer Protocol (TTP)



Participants during the Regional Review of Institutional Intellectual Property and Technology Protocol held on April 30, 2024, at the HERO Auditorium, Caraga State University

On April 30, 2024, the RAISE Project 1. IPTBM conducted an activity that aimed to review the existing Institutional IP Policy and TTP to timely align with updated international and national IP regulations as well as to develop recommendations for improving existing policies and practices related to IP Management. This activity was participated by a total of 38 participants with 4 representatives from ASSCAT, and 3 representatives from NEMSU while the remaining was composed of CSU participants. Additionally, online participants joined from various HEIs in Caraga, including CLC College of Butuan, De La Salle John Bosco College, Andres Soriano Colleges of Bislig, and St. Francis Xavier College. Before the review, Ms. Maria Leidy Gatuz, an IP Rights Specialist at IPOP, delivered a talk and provided insights regarding the significance of having an IP Policy and Tech Transfer Protocol

DOST-ASTi Roadshow and IPv6 Training and Deployment



Participants during the DOST-ASTi Roadshow and IPv6 Training and Deployment held on September 24, 2024, at the HERO Auditorium, Caraga State University

The Caraga State University College of Computing and Information Sciences in collaboration with DOST-ASTi, successfully held the Roadshow and IPv6 Training and Deployment. The event featured esteemed speakers from DOST-ASTi, including Mr. Bayani Benjamin Lara, Mr. Alvin de Gracia, Ms. Jelina Tanya Tetangco, Ms. Neyzielle Ronnicque Cadiz, and Ms. Kristine Angelica Valderosa.

We were pleased to welcome participants from State Universities and Colleges (SUCs), partner agencies in the Caraga Region, Internet Service Providers, local ISPs, and cable operators. This gathering provided an essential opportunity for attendees to enhance their knowledge and skills in IPv6 deployment while sharing valuable insights.

We extend our gratitude to Dr. Rolyn C. Daguil, our University President and ARD Ricardo N. Varela of DOST Caraga for their presence. Special appreciation is also due to Dr. Jaymer M. Jayoma, our Research Services Director, for joining us and presenting the initiatives of CSU RDIE on behalf of Dr. Jeffrey T. Delloso, our Vice President for Research and Development, Innovation, and Extension.

CEGS Faculty Members present 50 research papers in Japan



Twenty-three faculty members from Caraga State University's College of Engineering and Geosciences (CEGS) participated in the 10th International Exchange and Innovation Conference on Engineering & Sciences (IEICES 2024) at Kyushu University in Fukuoka, Japan. All 50 research papers submitted by CSU-CEGS were accepted for presentation and publication.

IEICES is organized annually by the Interdisciplinary Graduate School of Engineering Sciences (IGSES) and the Intellectual Exchange and Innovation (IEI) Program of Kyushu University, Japan. It serves as a platform for disseminating advanced research findings in critical areas of engineering and science, with a focus on applied sciences for electronics and materials, molecular and material sciences, advanced energy engineering science, energy and environmental engineering, and earth system science and technology.

The papers will be published and indexed by Scopus, enhancing their global impact. Key participants included Vice Presidents Dr. Jeffrey T. Dellosa and Dr. Michelle V. Japitana, along with CEGS Dean Engr. Anamarie P. Sajonia and several other faculty members.

CSUCC Faculty Members present research papers in ASIANCON 2024



2024 4th ASIAN CONFERENCE ON INNOVATION IN TECHNOLOGY (ASIANCON 2024)
AUGUST 23 & 24, 2024

Research Title:
An Egg Incubator with IoT-Based Control and Monitoring System.

Authors:
Blondie T. Sanchez*, Giever Cabajes,
Kent Andrey M. Porras, Eleazar P. Ranez Jr.,
Department of Electrical Engineering
Caraga State University - Cabadbaran Campus
Cabadbaran City Philippines

ENGR. BLONDIE T. SANCHEZ
*PAPERS PRESENTATION



2024 4th ASIAN CONFERENCE ON INNOVATION IN TECHNOLOGY (ASIANCON 2024)
AUGUST 23 & 24, 2024

Research Title:
Techno-Economic Evaluation of a Small-Scale Hybrid On-Grid Solar PV with Battery Energy Management System for Study Spaces.

Authors:
Erickson A. Tacda*, Samson II G. Petil,
Niño Ludy P. Aca-ac,
Department of Electrical Engineering
Caraga State University - Cabadbaran Campus
Cabadbaran City Philippines

ENGR. ERICKSON A. TACDA
*PAPERS PRESENTATION



2024 4th ASIAN CONFERENCE ON INNOVATION IN TECHNOLOGY (ASIANCON 2024)
AUGUST 23 & 24, 2024

Research Title:
Design and Development of a Multi-Charging Portable Power Generator with Mobile Applications.

Authors:
Novie Dave B. Perez*, Jac Alain Gulle,
Gian Madridano, Ronel Wapili,
Department of Computer Engineering
Caraga State University - Cabadbaran Campus
Cabadbaran City Philippines

ENGR. NOVIE DAVE B. PEREZ
*PAPERS PRESENTATION



2024 4th ASIAN CONFERENCE ON INNOVATION IN TECHNOLOGY (ASIANCON 2024)
AUGUST 23 & 24, 2024

Research Title:
Design and Development of a Bangus Sorting and Quantifying Maching using ArUco Marker Based-Image Processing.

Authors:
Donna Lyn B. Castillo*, Kirt Alexis Soria,
Aramie Espuerta, Anna Mae Custan,
Department of Computer Engineering
Caraga State University - Cabadbaran Campus
Cabadbaran City Philippines

ENGR. DONNA LYN B. CASTILLO
*PAPERS PRESENTATION



2024 4th ASIAN CONFERENCE ON INNOVATION IN TECHNOLOGY (ASIANCON 2024)
AUGUST 23 & 24, 2024

Research Title:
Development of a Drowse and Erratic Driving Detection Dashcam using Haar Cascade.

Authors:
Danijane C. Gonzales*, Novie Dave B. Perez,
Jannah Jane S. Bugas,
Department of Computer Engineering
Caraga State University - Cabadbaran Campus
Cabadbaran City Philippines

ENGR. DANIJANE C. GONZALES
*PAPERS PRESENTATION



2024 4th ASIAN CONFERENCE ON INNOVATION IN TECHNOLOGY (ASIANCON 2024)
AUGUST 23 & 24, 2024

Research Title:
Design and Development of a Smart Blind Stick for Enhanced Mobility and Independence of Visually Impaired Individuals.

Authors:
Jaybie T. Sanjorjo*, Novie Dave B. Perez,
Jannerjun Apag,
Sepriel Lahinao, Rima Villacencio,
Department of Computer Engineering
Caraga State University - Cabadbaran Campus
Cabadbaran City Philippines

ENGR. JAYBIE T. SANJORJO
*PAPERS PRESENTATION

Six (6) faculty members and students from the Department of Electrical Engineering and Computer Engineering at Caraga State University – Cabadbaran City (CSUCC) successfully presented their research at the prestigious IEEE 4th Asian Conference on Innovation in Technology (ASIANCON 2024), held virtually on August 23-24, 2024.

These research projects, which were part of the completed projects of talented engineering students, were developed under the guidance of dedicated faculty advisers. The presentations showcased innovative solutions and cutting-edge advancements in technology, reflecting the university's commitment to excellence in research and innovation.

The presented papers are set to be published in the IEEE Xplore Digital Library which is indexed by Scopus, further solidifying university's position on the global research stage.

3rd Technology Business Summit 2024



Navigatu's TBI Director, Prof. Melbert R. Bonotan along with other TBI Directors and Managers in Mindanao during the 3rd TBI Summit held on September 27, 2024, at the Lim Ket Kai Luxe Hotel, Cagayan de Oro City.

On September 27, 2024, Professor Melbert R. Bonotan, TBI Director at Caraga State University and Project Leader for Caraga RISE, participated in the 3rd Mindanao TBI Summit at the Pinnacle Hotel and Suites in Davao City. Organized by IDEAS Davao in partnership with the Mindanao Development Authority (MinDA) and the Wadhwani Foundation, the summit gathered key stakeholders from the startup ecosystem to discuss innovation in Mindanao.

As a panelist in the session titled "Ecosystem Building Through Mindanao Startup Consortia," Professor Bonotan highlighted the critical role of academic institutions in fostering regional innovation, emphasizing that education is foundational to developing a thriving startup ecosystem in Caraga. Other notable panelists included Mr. Miguel Guillermo and RD Martin Wee, who contributed to discussions on strengthening Mindanao's innovation landscape.

In another session, "Building Campus Innovation Ecosystem," Professor Bonotan and fellow experts explored how universities can integrate entrepreneurship into their academic frameworks. He stressed the importance of aligning university goals with technology business incubator (TBI) initiatives and forming partnerships with organizations like the Wadhwani Foundation to promote entrepreneurship among students. Representing Caraga RISE, Professor Bonotan showcased regional startup initiatives, fostering collaboration and knowledge sharing within the broader Mindanao innovation community.

OVPRDIE PARTICIPATES THE SPMS HANDHOLDING SEMINAR



Executives, Select Directors, Deans, Unit Heads, and personnel during the Strategic Performance Management System Seminar on October 7-8, 2024.

The OVPRDIE participated in a two-day seminar on performance management facilitated by Civil Service Commission (CSC) Assistant Regional Director Christopher C. Mabale, held on October 7-8, 2024. The participants were upskilled with their knowledge and application of the Strategic Performance Management System (SPMS) in their respective performance commitment reviews.

The university's Human Resource Management Services (HRMS) spearheaded the initiative, aiming to further strengthen performance management practices across the institution.

OVPRDIE UNDERWENT 2ND ISO EVALUATION

The OVPRDIE underwent its second ISO evaluation on November 27, 2024. The activity assessed the compliance of the office with the certified management system.

The evaluation focused on management processes and documentation from select colleges and administrative offices. This initiative reinforces CSU's dedication to upholding international standards in delivering quality instruction, research, extension, production, and administration to its stakeholders.



FuturesPhil Conference Towards Sustainable Goals, Innovation, and Futures Thinking



Caraga State University delegates with Dr. Tirso Ronquillo, PASUC and Batangas State University President, at the FuturesPhil Conference 2024, held at the Manila Prince Hotel, Ermita, Manila

Dr. Jeffrey T. Dellosa had the privilege of attending the FuturesPhil 2024 Conference, held from August 22 to 24, 2024, at the Manila Prince Hotel in Manila, Philippines. This significant gathering convened scholars, administrators, academicians, and researchers to explore the critical role of futures thinking in shaping both national and international policies.

The FuturesPhil Conference aimed to foster discussions on policy reforms essential to sustainable development, innovation, and futures thinking. The event focused on several key areas, including the future of work, education, health, agriculture, food security, technology, and tourism. Distinguished experts from various fields participated in this interdisciplinary forum, engaging in dialogues designed to propose scientific strategies for building a sustainable and resilient future.

Dr. Dellosa's participation in the FuturesPhil 2024 Conference was highly valuable. The insights gained from the event will contribute to the Office of the Vice President for Research and Development, Innovation, and Extension's ongoing efforts to incorporate forward-thinking perspectives into its programs and research initiatives. This experience will undoubtedly enhance the college's ability to prepare students and researchers for the challenges and opportunities of the future.

CSU and SEARCA conduct multi-stakeholder workshop to promote biotech adoption in Agusan del Norte



Representatives from academia, local farmers of Agusan del Norte, researchers, and media practitioners convened at Caraga State University in Butuan City for the project consultation workshop titled "Bridging and Upgrading Mechanisms and Pathways for the Uptake of Biotechnology (BUMP-UP Biotech)." Organized by the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) and co-organized by CSU, this initiative aims to advance agricultural biotechnology in the Philippines.

Funded by the Department of Agriculture - Bureau of Agricultural Research (DA-BAR) through the DA-Biotech Program Office (DA-BPO), BUMP-UP Biotech serves as an Information, Education, and Communication (IEC) project. Its objectives include presenting the current landscape of agricultural biotechnology in the country, highlighting research and development activities, regulatory frameworks, and emerging innovations.

Additionally, it seeks to identify challenges and opportunities in promoting modern biotechnology while recommending strategies to strengthen alliances among stakeholders. These efforts aim to foster greater adoption and acceptance of modern biotechnology, contributing to sustainable agricultural practices and food security.

By bringing together diverse stakeholders, this workshop underscores the importance of collaboration in addressing barriers to biotechnology uptake. It also aligns with broader national goals to enhance agricultural productivity and innovation through science-based approaches.



EXTENSION SERVICES & COMMUNITY ENGAGEMENT



PHYSICAL PERFORMANCE REPORT (BAR 1)

TARGET	Performance Indicator	ACCOMPLISHMENT
9	Number of active partnerships with LGUs, industries, NGOs, NGAs, SMEs, and other stakeholders as a result of extension activities	36
1500	Number of trainees weighted by the length of training	12,116.25
10	Number of extension programs organized and supported consistent with the SUC's mandated and priority programs	15
70%	Percentage of beneficiaries who rate the training course/s and advisory services as satisfactory or higher in terms of quality and relevance	99.00%

Over the past four quarters, the office has successfully established a total of thirty-six (36) active partnerships, reflecting a robust commitment to collaborative initiatives. The distribution of these partnerships is as follows: 3 partnerships in the first quarter (Q1), 10 partnerships in the second quarter (Q2), 15 partnerships in the third quarter (Q3), and 8 partnerships in Q4.

As of December 31, 2024, the number of trainees has reached a notable 12,116.25 which indicates a significant increase in the number of training sessions and workshops conducted. Furthermore, the office currently offers a total of twelve(12) extension programs, distributed as follows: four (4) programs in Q1, six (6) programs in Q2, one (1) program in Q3, and one (1) program in Q4. This expansion in extension offerings highlights the university's ongoing efforts to address community needs and enhance outreach.

In general, there has been a notable increase of 29% in performance compared to the established target as of December 31, 2024. This upward trend signifies not only improved outreach and engagement but also enhanced satisfaction among beneficiaries, reflecting the effectiveness of the university's extension services.

TRAININGS AND COMMUNITY ENGAGEMENT

In 2024, the Extension Programs under the OVPRDIE achieved a notable milestone in community engagement by reaching 12,116.25 trainees. This outcome, which surpasses the initial target by a substantial 99%, serves as a testament to the program's efficacy in both design and delivery. The alignment of its content and methodologies with the needs of its beneficiaries is evident, as it fosters enhanced satisfaction and yields impactful learning outcomes. These results underscore the program's capacity to effectively address community needs while facilitating widespread participation and engagement, thereby contributing to the broader discourse on community development and educational outreach.



List of Extension Trainings

- Sulong Dunong: SLP School of Leadership and Project Management – Year 2 (Module 1): BATCH 1
- Sulong Dunong: SLP School of Leadership and Project Management – Year 2 (Module 1): BATCH 2
- Week 1: Baking Livelihood Skills Extension Project
- Week 1: Silk Screen Printing Skills Training Project
- Week 1: Welding and Fabrication Technology Extension Project
- Week 1: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Week 2: Baking Livelihood Skills Extension Project
- Week 2: Silk Screen Printing Skills Training Project
- Week 2: Welding and Fabrication Technology Extension Project
- Week 2: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Week 3: Baking Livelihood Skills Extension Project
- Week 3: Silk Screen Printing Skills Training Project
- Week 3: Welding and Fabrication Technology Extension Project
- Week 3: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Week 4: Baking Livelihood Skills Extension Project
- Week 4: Silk Screen Printing Skills Training Project
- Week 4: Welding and Fabrication Technology Extension Project
- Week 4: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Week 5: Baking Livelihood Skills Extension Project
- Week 5: Welding and Fabrication Technology Extension Project
- Week 5: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Review Related Literature
- Week 6: Baking Livelihood Skills Extension Project
- Week 5: Silk Screen Printing Skills Training Project
- Week 6: Welding and Fabrication Technology Extension Project
- Week 6: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Module 1: SKILLS TRAINING ON CATERING AND KITCHEN OPERATION IN MAINIT, SURIGAO DEL NORTE
- Research Objectives and Hypothesis
- Week 7: Baking Livelihood Skills Extension Project
- Week 6: Silk Screen Printing Skills Training Project

List of Extension Trainings

- Week 7: Welding and Fabrication Technology Extension Project
- Week 7: Light Vehicle Driving with Engine Tune-up and Preventive Maintenance Extension Project
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- Training on Irrigated Lowland Rice Production and Management
- SciTech Training: Coffee Farming Technologies and Sustainability
- SciTech Training II: Coffee Farm Pest Management
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- Enhancing Chip Products through Frying Technique Refinement
- Addressing Virus Diseases in Abaca Production: A Status Update and Comprehensive Training on Production and Disease Management
- CAA-LIFE from Pasture to Prosperity: Ruminant Feeding and Basic Health Management Training
- Agrimmunity: Training on Vegetable Seedling Production and Nursery Establishment
- Training on Financial Literacy
- Food Safety & GMP: A Practical to Developing SSOP
- Training-Workshop on Caraga Black Native Chicken Production and Management to Ensure Quality and Productivity
- Mastering the Basics: Fruit Preserve Production Technology
- Product Development and Enhancement Training Program for MSME's
- Training Workshop on Exhibit Management
- Financial Literacy Training
- Transforming Teaching with OpenAI: Tools and Techniques for Educators
- Transforming Presentations with Animation for Teachers
- Graphic Designing Using Canva for Teachers
- DOST-ASTI Roadshow and IPV6 Deployment Training

List of Extension Trainings

- Impact Assessment of the Project OBIMS
- UPSKILLS MATH TEACHERS: Training on Workshop on Action Research Development in Mathematics for Basic Education
- Upskill to Upgrade PEDAGOGIES: Training_Workshop on Multimodality in Education
- Training-Workshop on the Development of the Participatory Action Research Development for Basic Education
- Geographic Information System (GIS) Training for the Caraga RFPF Technical Working Group (TWG)
- Empowering Educators and Students: Implementing Robotics and Automation Training in Taligaman National High School
- Technical Assistance Training-Workshop on Quantum Geographic Information System (QGIS) for LGU Counterparts and assessment of public land titling project implementers
- Unlocking Property Rights: Empowering Local Communities through Land Titling Seminars
- Training on Critiquing the Final Defense of Grade 12 HUMMS Students
- Writeshop on Developing Teaching Guides for Introduction to Philosophy and Philippine Politics and Governance
- Gender Sensitivity Training
- Gender Sensitivity Training
- Gender Sensitivity Training
- Marine Invertebrates and Taxonomy Methods Lecture-Workshop and Collaborative Research Agreement Signing
- Science and Math Camp 2024
- Training -Workshop on Data Analysis and Reporting
- Capacity Building on Basic Microbiology Techniques for SIP
- Digital Poster-Making Workshop
- CLEAN: Seminar-Workshop on Managing Household Solid Waste: Part 1
- CLEAN: Training-Seminar on Managing Household Solid Waste: Part 2 (Vermicomposting and Urban Gardening)
- CLEAN: Ecological Mangrove Rehabilitation Seminar
- Climate Change Adaptation and Environmental Volunteering Webinar
- Agroforestry Field Day
- Operational Plan Development and Alignment Workshop
- Survey Questionnaire Development Workshop
- Crafting and Utilizing Effective Survey Questionnaires for Farm to Market Road Impact Assessment
- Training-Workshop on Action Research Development in Science for Basic Education
- Seminar on Child Abuse
- Seminar on Violence Against Women

List of Extension of Extension Programs

As of December 31, 2024, **fifteen (15) extension programs** were actively being implemented, distributed as follows: 4 in Q1, 6 in Q2, 1 in Q3, and 4 in Quarter 4.

- Mainit ,Surigao del Norte- Uswag na og Ipadajon and Turismo para sa Yutawhan (UNITY): A Skills Enhancement Program
- Skills Training Extension Programs (STEP) for Human Capital Development Extension (HuCAD)
- INNOVATE formerly known as "Research Capability Enhancement Professional Development for High School Teachers"
- Caraga Region Coffee Production Build-up through S&T based Interventions under Research and Innovation towards achieving Sustainable Economies for Agusan del Norte RISE ADN
- MUGNA Caraga: Mentoring and Upskilling Groups towards Navigating their Action-Responses
- Empowering Educators and Students: Implementing Robotics and Automation Training in Taligaman National Highschool
- Sago Technology Transfer Phase II
- Facilitating Opportunities for Research, Collaboration, and Education (FORCE)
- Services for Educational and Ecological Development (SEED)
- Peace and Advocacy promotion; Advancement in Education; Social Welfare Support; and Advocacies and Prevention of Health-related issues / PASA Extension Program
- Community Learning for Environmental Awareness and Nurturing (CLEAN) for Brgy. Pagatpatan, Butuan City: An Extension Project in Support to PREPARED Pagatpatan
- CaraGALING: Caraga's Generator of Advancement, Linkages, and Innovations for
- Nurturing Growth in Technology Awareness and Adoption
- Adopt an Agency - DENR-ENGP Information System Phase 2
- Financial Literacy Training Program
- Enhancing Administrative Efficiency at PCA Caraga: Implementing Software Solutions and Upgrading Network Infrastructure

List of Active Partnerships

A total of **36 active partnerships** were established over the last three quarters, demonstrating a consistent effort to expand engagement: 3 partnerships were initiated in Q1, followed by 10 in Q2, a significant increase to 15 in Q3, and 8 in Q4, indicating a sustained commitment throughout the year.

- Agusan del Norte Electric Cooperative, National Grid Corporation- Agusan del Norte, Institute of Integrated Electrical Engineers of the Philippines, Inc-Agusan del Norte Chapter
- Cabadbaran Local Government Unit
- Alegria's Municipal Tourism Office
- Governance, Risk management, and Compliance (GRC)
- National Commission on Indigenous Peoples (NCIP) and; Department of Environment and Natural Resources (DENR)
- Mainit Local Government Unit
- Brgy. Kauswagan, Cabadbaran City Local Government Unit
- Department of Social Welfare and Development
- Department of Education Cabadbaran City Division
- Magallanes DepEd Schools and Local Government Unit of Magallanes
- Department of Education
- Department of Trade and Industry - Agusan Del Norte
- Department of Science and Technology - Caraga Region
- Taligaman National High School, Taligaman, Butuan City, Agusan del Norte
- Brgy. Baan Km3, Butuan City
- DepEd Caraga
- Kaba-ang Livelihood Association
- Dep-Ed Taligaman National High School
- ATI-RTC 13
- BLGU- Pagatpatan
- Philippine National Volunteer Service Coordination Agency
- Barangay Local Government Unit of Sibagat, Agusan del Sur
- Barangay Local Government Unit of Pagatpatan, Butuan City
- Taligaman NHS, Taligaman, Butuan City
- Department of Environment and Natural Resources
- Barangay Local Government Unit of Baan km3
- Landbank Countryside Development Foundation, INC
- Sitio Antipolo Farmers Association of Buenavista, Agusan del Norte, Inc.
- Department of Science and Technology - PCAARRD



CAA-Extension Services

Butuan City SPED Center received 10 trays of Vegetable Seedlings in support for Gulayan sa Paaralan Program

As part of the extension project of Caraga State University (CSU), a seedling distribution initiative was successfully conducted across various elementary schools in Butuan City. This activity was carried out in support of the Department of Education's "Gulayan sa Paaralan" program, which aims to promote sustainable gardening, proper nutrition, and food security among schoolchildren.

The program involved the delivery of assorted vegetable seedlings to participating schools, enabling them to establish or enhance their school gardens. These gardens serve as a practical tool for teaching students agricultural skills while also addressing issues like malnutrition by providing fresh produce for school feeding programs. The initiative aligns with CSU's commitment to community engagement and environmental sustainability, leveraging its expertise in agriculture and environmental studies to support local educational institutions.

Through this project, CSU not only contributes to the development of healthy eating habits among learners but also fosters environmental stewardship and self-reliance within the community. The program is expected to have long-term benefits by encouraging students and their families to adopt backyard gardening practices, thereby extending the impact of the initiative beyond the school premises.



The "Technology Transfer 'Sago Processing Technology' - Phase 2" project, led by Engr. May Rose B. Osoteo, Engr. Neil Caesar M. Tado, Engr. Aljon E. Bocobo, and Engr. Armdin A. Valmoria, aims to enhance and disseminate innovative sago processing techniques. This phase focuses on improving production efficiency and product quality by introducing modern technologies and practices.

The project addresses traditional processing challenges by introducing mechanized solutions, reducing processing time, and increasing yields. It also promotes sustainable practices by utilizing by-products effectively.

Through training and capacity-building, the project encourages local farmers and processors to adopt these modern techniques, fostering economic growth and sustainability in communities reliant on sago production.

CSU Extension Services Visit Central Mindanao University

On November 14, the Extension Services Office of Caraga State University (CSU) conducted a benchmarking activity at Central Mindanao University (CMU) in Maramag, Bukidnon. This initiative was led by CSU Extension Services Director Romell A. Seronay, alongside faculty extension coordinators from CSU's Main and Cabadbaran campuses, including Chime Garcia, Junar T. Lingo, Joanne A. Langres, and others.

The purpose of the activity was to gain insights and strategies to enhance extension services and implementation. CMU Extension Director Rachel Salingay shared their operational strategies, emphasizing the importance of clear task delegation and efficient teamwork. CMU's Extension Office showcased its well-organized structure, comprising four units: Information and Communication, Capability Building, Techno-Demo Services, and Monitoring Evaluation and Documentation.

Participants toured CMU's facilities, including the research office and DXMU-FM radio station, which serves as a platform for disseminating updates. They also engaged in hands-on experiences at CMU's Cattle Research Center and Coffee Quality Laboratory. Additionally, the team visited Bayabason community in Maramag to interact with local vendors. This benchmarking activity highlighted CMU's exemplary extension practices and provided valuable lessons for CSU's extension initiatives.



MONITORING AND EVALUATION

Caraga State University (CSU) is dedicated to enhancing the quality and impact of its research and extension initiatives through rigorous monitoring and evaluation. This commitment is demonstrated by regular in-house reviews, such as the RDIE In-house Review, where researchers assess ongoing projects to ensure alignment with societal development goals. CSU also collaborates with government agencies and stakeholders to ensure that research outputs are utilized effectively by industries and communities.



OVPRDIE IN-HOUSE REVIEW 2024

*September 10-11, 2024
Caraga State University HERO Learning
Commons Auditorium*

Caraga State University (CSU) is dedicated to enhancing the quality and impact of its research and extension initiatives, as demonstrated by its recent Research and Development, Innovation, and Extension (RDIE) In-house Review held on September 10-11, 2024. This event brought together researchers and project staff to evaluate the university's ongoing projects and their contributions to societal development.

The review focused on assessing the processes, contributions, financial statuses, and inventory management of various research and extension projects funded by multiple agencies. Dr. Jeffrey T. Dellosa, Vice President for Research and Development, Innovation, and Extension, led the activity and encouraged participants to share their challenges and opportunities.

MONITORING AND EVALUATION

RDIE IN-HOUSE REVIEW

Our University President, Dr. Rolyn C. Daguil, delivered an Opening Message, emphasizing the significance of the In-House Review in evaluating the project's impact. He highlighted the importance of ensuring that our research, development, innovation, and community engagement activities meet the highest standards of quality. Dr. Daguil encouraged reflection and feedback to transform outputs into innovative products with future economic value, while also promoting collaboration and shared visions. He expressed gratitude to all faculty researchers for their dedication and hard work, and he highlighted the importance of promoting a spirit of collaboration and openness to further enhance our outputs and contribute to the university's vision.



The rationale behind the activity was presented by Dr. Jeffrey T. Dellosa, our Vice President for Research, Development, Innovation, and Extension. Dr. Dellosa highlighted the importance of this event in advancing our commitment to research, development, innovation, and community engagement. He outlined key updates to the activity, focusing on essential parameters for effective project management and performance evaluation.

CSU's research projects span a wide array of fields, including sustainable agriculture, biotechnology, health, communication, rural development, mining technology, machine innovation, intellectual property, environmental conservation, geographic systems, and artificial intelligence. In addition, all seven colleges within the university presented various extension projects that included community outreach programs designed to benefit local populations.



A total of **24 research projects were presented and reviewed, with 14 ongoing and 10 completed. Also, 7 extension projects underwent review.** This in-house evaluation aligns with CSU's mission to foster a sustainable future through impactful research that drives meaningful development and change for its stakeholders. By conducting thorough evaluations, CSU reaffirms its dedication to advancing innovation and progress within the community.

Caraga State University Cabadbaran Campus holds In-House Review



On October 2-3, 2024, the E and G Hotel and Convention center became the backdrop for a pivotal In-House Review, dedicated to evaluating and enhancing the research and extension programs at Caraga State University Cabadbaran Campus. Organized by the CSUCC Division for Research, Development, Innovation, and Extension, this two-day event showcased the commitment of the faculty and personnel to advancing their initiatives.

Under the capable leadership of Dr. Nathalie L. Daminar, the Division Chief for RDIE, the review aimed to assess finished, ongoing, and proposed projects. The evaluation team, comprising esteemed leaders such as Dr. Jeffrey T. Delloso, Vice President for RDIE; Dr. Junrie T. Matias, Graduate School Dean and Research Development and Publication Director; Dr. Romell A. Seronay, Director for Extension Service; With the support of key administrative figures like Ms. Donna C. Polistico, Administrative Officer V; Ms. Diana Rose B. Calundre, CSUCC Budget Officer, and Dr. Deomila B. Mamaoag, CSU Cabadbaran Campus Director, provided invaluable insights and guidance throughout the process.

The event fostered a collaborative atmosphere, encouraging faculty members to delve into discussions about challenges and successes in their programs. The review did not only highlight areas for improvement but also celebrated the ultimate achievements of the campus's research endeavors. By the end of the event, participants left with renewed motivation and actionable plans, marking the In-House Review as a resounding success in fostering academic excellence and innovation.

Caraga State University welcomed DOST-RITTD delegates for Post-Project Monitoring



On February 21, 2024, the Research Information and Technology Transfer Division (RITTD) of DOST-PCIEERD, headed by Ms. Russell M. Pili, Chief Science Research Specialist, along with Ms. Leizl D. Sueno, Senior Science Research Specialist, Engr. Mark Joshua P. Halili, Science Research Specialist II, Engr. Kisha Grace S. Picpican, Science Research Specialist I, and Engr. Samuel Ryan P. Recto, Science Research Specialist I, conducted project monitoring at the HERO Learning Commons Board Room, Caraga State University.

The RITTD team monitored six PCIEERD-funded projects:

1. Innovation and Technopreneurship Hub (iTech)
2. IMPACT: Assistance in the Commercialization of DOST Funded Technologies at Caraga State University
3. FASTRAC: MAPX: Manage Assets and Properties and Map for Visualization
4. Mine Geotechnical and Environmental Assessment Robotic System (Mine GEARS)
5. Mining Industry using Augmented Reality (AR) and Virtual Reality (VR) Technologies, also known as MARVEL (Mining AR and Virtual eLearning)
6. HEIRIT RESEED: Caraga Regional Innovation and Startup Ecosystem (RISE) Continuum Development

The Office of the Vice President for Research, Innovation, and Extension welcomed the monitoring team and the project staff from the aforementioned projects.

DOST-PCAARRD delegates for Project Monitoring



From July 2-4, 2024, representatives from the Department of Science and Technology - Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (DOST-PCAARRD) Technology Transfer and Promotion Division visited Caraga State University for the Regional Year 1 Semi-annual Review and Site Visit.

During this review, project leaders of the RAISE Program in Caraga presented their semi-annual reports, which included a consolidated scorecard detailing the project's progress and the challenges encountered during the initial implementation phase.

OVPRDIE YEAR – END ASSESSMENT AND MONITORING OF LOCALLY-FUNDED COMPLETED PROJECTS

Culminating this academic year's milestones and accomplishments, the Office of the Vice President for Research and Development, Innovation, and Extension (OVPRDIE) conducted the **Year-End Accomplishment Presentation** on November 20–22, 2024, held at La Entrada Beach Resort, Britania, San Agustin, Surigao del Sur.

The event highlighted achievements across OVPRDIE units, shared strategies, and set the direction for future initiatives. Indeed, this was a productive and collaborative experience for all participants.



The OVPRDIE Unit Heads and Staff during the Year-End Assessment on November 20–22, 2024.

On December 9–11, 2024, the Office of the Vice President for Research and Development, Innovation, and Extension (OVPRDIE) facilitated a comprehensive presentation and monitoring session for locally-funded projects. This initiative focused on five projects funded through the General Appropriations Act (GAA) allocated for the current year.

Monitoring these projects promotes transparency and accountability in the use of public funds. By making project outcomes accessible to the public, stakeholders can provide feedback, ensuring that projects are implemented effectively and meet their intended goals. This transparency helps build trust between local governments and citizens, reinforcing democratic practices.



The OVPRDIE Executive Committee Members along with the Project Leaders during the Monitoring and Assessment of Locally-funded Projects on December 10, 2024.

The importance of this initiative extends beyond mere compliance; it serves as a foundation for institutional development. By continuously refining project strategies based on real-time feedback, OVPRDIE enhances its capacity to respond to community needs effectively. This iterative process ensures that research and extension efforts remain relevant and impactful, ultimately contributing to sustainable development goals at the local level.



RESEARCH & DEVELOPMENT PUBLICATION MANAGEMENT



Caraga State University's Research and Development and Publication Management Office (RDPMO) plays a pivotal role in advancing the university's research and publication endeavors. The office is primarily responsible for promoting and managing research publications, ensuring that outputs are disseminated effectively to academic and industry stakeholders. This includes coordinating with researchers to enhance publication quality, facilitating workshops on writing for journal publications, and collaborating with the Office of the Vice President for Research and Development, Innovation, and Extension (OVPRDIE) to align publication strategies with the university's broader research agenda.

Notably, CSU has achieved significant publication milestones, reflecting its commitment to academic excellence and research dissemination. The office's efforts have contributed to the university's growing reputation as a hub for innovative research and knowledge sharing. The office aims to enhance the quality and impact of research initiatives by fostering a culture of collaboration and innovation. It seeks to link research outputs with practical development outcomes, benefiting local communities and industries through stakeholder engagement and collaboration.

In collaboration with other units such as the Research & Development, and Innovation Services Office (RDISO), the RDPMO ensures that research projects are well-managed and aligned with national and international standards. The office also supports the university's participation in regional, national, and international research consortia, expanding its research impact and visibility. Through these initiatives, the office contributes significantly to advancing CSU's research, development, and innovation agenda, positioning the university as a leader in regional and national development efforts.

Caraga State University's Research and Development Publication Office conducted workshops focused on transforming research into publishable articles, a key initiative of the office. This workshop aimed to enhance the writing skills of faculty and researchers, guiding them through the intricacies of academic publishing.

The event included comprehensive sessions on various aspects of scholarly writing, such as structuring articles, understanding target journals, and navigating the peer-review process. Participants from the different colleges were encouraged to discuss their research ideas and receive feedback on their drafts, nurturing a collaborative environment for knowledge exchange.



The workshop also emphasized the importance of aligning research with CSU's strategic goals and the broader national development agenda. By equipping researchers with the necessary skills to publish their findings effectively, CSU aims to increase its visibility in academic circles and contribute significantly to the global knowledge base. The distribution of Write Shops across different colleges highlights the university's comprehensive approach to research development:

- College of Humanities and Social Sciences (CHASS): 2 Write Shops
- College of Engineering and Geo-Sciences (CEGS): 1 Write Shop
- College of Mathematics and Natural Sciences (CMNS): 2 Write Shops
- College of Computing and Information Sciences (CCIS): 1 Write Shop
- College of Agriculture and Agri-Industries (CAA): 1 Write Shop
- Graduate Studies (GS): 1 Write Shop
- College of Education (CEd): 2 Write Shops
- CSU Cabadbaran Campus (CSUCC): 5 Write Shops

This initiative reflects CSU's commitment to advancing research output and supporting its faculty in achieving excellence in academic publishing.

CSU Achieves 500 Scopus-indexed papers in recent database

The Caraga State University (CSU) is proud to announce a remarkable milestone in its research endeavors, surpassing an impressive 500 publications on the prestigious Scopus database.

The 500+ Scopus publications are the result of the collective efforts of 423 dedicated authors affiliated with CSU. These researchers have made significant contributions across a wide range of disciplines, including Computer Science (206), Environmental Science (88), Engineering (73), Agricultural and Biological Sciences (72), and others.

Scopus is a comprehensive, multidisciplinary database that includes peer-reviewed literature such as scientific journals, books, and conference proceedings. A journal's inclusion in Scopus signifies its quality and influence within the academic community.

The university's achievement exemplifies its unwavering commitment to driving innovation and advancing knowledge across various fields. Through the relentless efforts of its faculty, researchers, and students, the university has consistently pushed the boundaries of research, exploring new frontiers and addressing complex challenges.

As the university celebrates this milestone, it remains dedicated to expanding its research footprint and making significant contributions to the global knowledge base.

500

publications on the prestigious **Scopus Database** were from **423 authors** affiliated with Caraga State University.

2024 Publication Performance Per College

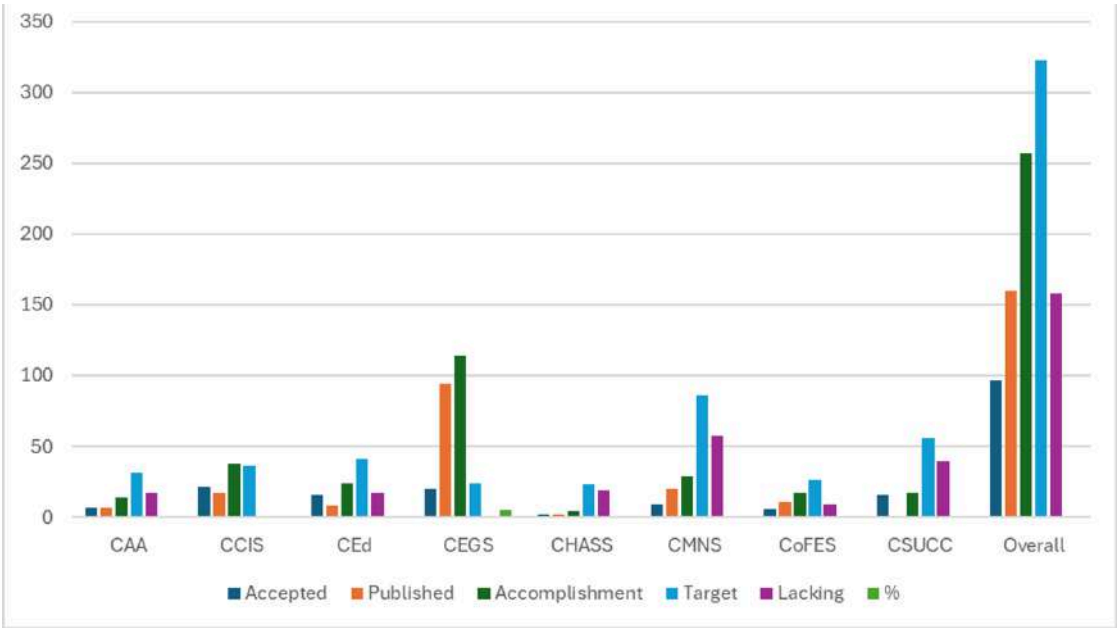


Figure 1. Publication performance per College

Caraga State University's research output performance showed varied results across different colleges. Notably, only the College of Engineering and Geo-Sciences (CEGS) and the College of Computing and Information Sciences (CCIS) successfully met their research output targets, demonstrating strong performance in research productivity. In contrast, the College of Humanities and Social Sciences (CHASS), College of Mathematics and Natural Sciences (CMNS), and CSU Cabadbaran Campus (CSUCC) recorded the lowest percentages of outputs, indicating areas for improvement.

A significant concern was the performance of Full Professors from CMNS, College of Forestry and Environmental Science (CoFES), and CSUCC, who did not meet their targets. This highlights a need for enhanced support or strategies to boost productivity among senior faculty members.

To address these challenges, the university should consider providing additional resources and mentorship to underperforming colleges. Furthermore, offering workshops or training programs for Full Professors could help improve their research productivity. A thorough review of current research strategies is also necessary to ensure they align with the university's overall goals and objectives. By implementing these measures, CSU can enhance its research output and achieve greater academic excellence.

Article Publication

Table 1. Number of Accepted and Published Articles per College

College	Accepted	Published	Total	Target	%
CAA	8	8	16	31	51.61
CCIS	21	17	38	36	105.56
CED	15	8	23	41	56.10
CEGS	19	94	113	24	470.83
CHASS	2	4	6	23	26.09
CMNS	13	18	31	86	36.05
COFES	6	11	17	26	65.38
CSUCC	16	2	18	56	32.14
TOTAL	100	162	262	323	81.11

Table 1 summarizes the research publication performance of various colleges, highlighting their accepted and published papers, total outputs, and percentage of target achievement. The College of Agriculture and Agri-industries (CAA) produced 16 outputs (8 accepted, 8 published), achieving 51.61% of its target of 31. The College of Computing and Information Sciences (CCIS) exceeded its target of 36 with 38 outputs (21 accepted, 17 published), achieving 105.56%. Similarly, the College of Engineering and Geo-Sciences (CEGS) significantly surpassed its target of 24, producing 113 outputs (19 accepted, 94 published) for an impressive 470.83%. In contrast, the College of Education (CEd) managed 23 outputs (15 accepted, 8 published), achieving 56.10% of its target of 41, while the College of Humanities and Social Sciences (CHASS) achieved only 26.09% of its target of 23, with 6 outputs (2 accepted, 4 published).

The College of Mathematics and Natural Sciences (CMNS) produced 31 outputs (13 accepted, 18 published), achieving 36.05% of its target of 86. The College of Forestry and Environmental Science (CoFES) achieved 65.38% of its target of 26 with 17 outputs (6 accepted, 11 published). Lastly, the CSU Cabadbaran Campus (CSUCC) achieved 32.14% of its target of 56, contributing 18 outputs (16 accepted, 2 published). Overall, the total research outputs across all colleges amounted to 262 (100 accepted, 162 published), achieving 81.11% of the collective target of 323. While some colleges like CEGS and CCIS excelled, others, such as CHASS and CSUCC, fell significantly short, indicating a need for greater efforts in fostering research productivity in these areas.

Cited Articles in Scopus

In Scopus, CSU has 592 indexed documents with an h-index of 22 (indicating that 22 documents have been cited at least 22 times) and a total of 2,406 citations. However, over the last three years (2022, 2023, and 2024), only 312 articles have been cited, as shown in Figure 2.

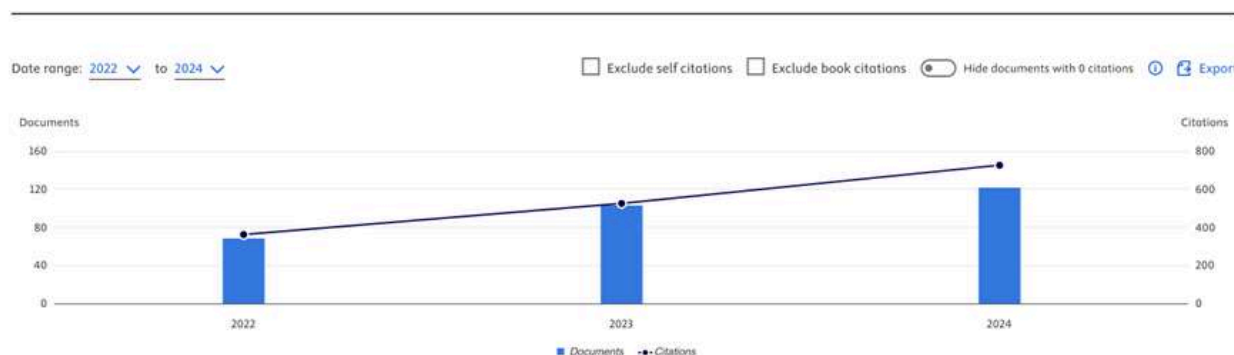
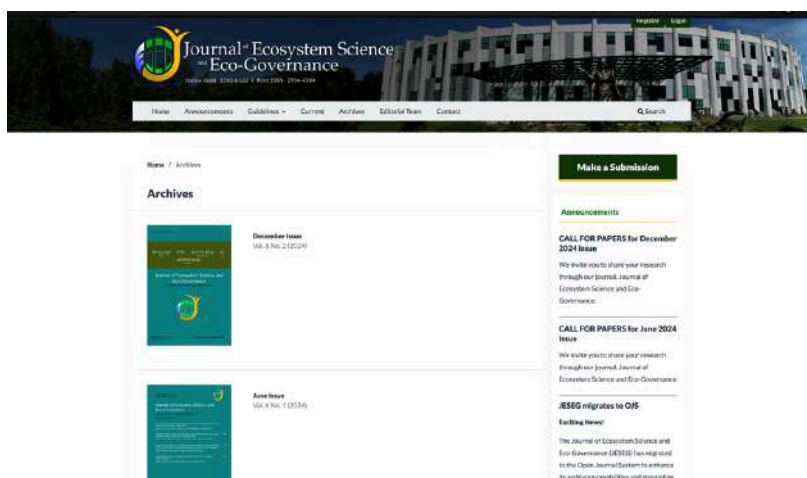


Figure 2. Number of Articles cited in the last three years.

LOCAL Journal Publication

Our local journals have published three (3) issues to date: two from JESEG and one from JASSH. Additionally, another issue scheduled for December 2024 will be released this month. The journals are accessible at <https://journals.carsu.edu.ph/>.





INTELLECTUAL PROPERTY MANAGEMENT



Technology Transfer and Licensing Office - Innovation and Technology Support Office (TTLO-ITSO) leads in the promotion and communication of Intellectual Property (IP) through IP education programs and advocacy in the university.

The office also provides technical assistance in the conduct of patent search and patent drafting activities and training to faculty members in the university and different stakeholders in the region. It also develops and implements policies and processes to enable IP protection and technology commercialization. Lastly, it pursues IP protection, technology transfer, and commercialization.

VISION:

An innovation and technology support office serving the Caraga State University and the communities in the region, enabling and supporting increased innovation, protection of our innovation through patents, and utilization and commercialization of patented innovation for the benefit of the University and the communities in the region.

MISSION:

The ITSO is committed to providing patent information and IP services to the Caraga State University and the communities in the region, and supporting research and development which will have a positive social, economic, technological, and environmental impact on the University and the communities in the region.

HIGHLIGHTS OF ACCOMPLISHMENTS

PHYSICAL PERFORMANCE REPORT

Program/Performance Indicators do not apply to the operations of the TTLO.

FINANCIAL PERFORMANCE REPORT

The TTLO has no budget for its operations and is mainly dependent on external funding from DOST-PCAARRD through the Regional Agri-Aqua Innovation System Enhancement (RAISE) Program. TTLO, as the smallest unit, acquired a two-year project fund for the Project 1 - Regional Intellectual Property and Technology Business Management (IPTBM) in Caraga amounting to Php 3,983,650.00. The total approved budget for Year 1 is Php 2,412,950 with a total obligation of Php 1,741,400.36 as of to date consisting of Personal Services (PS) expenses and Maintenance and Other Operating Expenses (MOOE). However, the Year 1 accounts payable amounts to Php 399,165.43, leaving a total unexpended balance of Php 272,384.21. This unexpended balance will be reprogrammed for the Year 2 operation of the project. The total fund utilization for the Year 1 budget is 88.71%.

The Technology Transfer and Licensing Office (TTLO) successfully delivered numerous activities and services at the start of the year supporting innovation and intellectual property protection across diverse fields.

INTELLECTUAL PROPERTY APPLICATIONS

In 2024, the Technology Transfer and Licensing Office (TTLO) of Caraga State University (CSU) demonstrated significant progress in intellectual property (IP) initiatives by filing a total of 13 IP applications. These filings include 8 patent applications, 4 trademark applications, and 1 industrial design application.

PATENT / UTILITY MODEL

- A Portable Device for Harvesting Fleshy Drupes (Date of application: March 5, 2024)
- An Automated Brooding System (Date of application: May 31, 2024)
- Monitoring and Controlling of Floating Photovoltaic System (Date of application: June 28, 2024)
- A Mixture of Plant Extracts for Hair Growth Promotion (Date of application: July 31, 2024)
- A Composition of Fiber-Based Packaging and Process of Making thereof (Date of application: December 2, 2024)
- Vehicle Monitoring Method (Date of application: April 1, 2024)
- Fish Attractor (April 18, 2024)
- Vegetable-based Frozen Dessert (Date of application: October 27, 2024)

HIGHLIGHTS OF ACCOMPLISHMENTS

TRADEMARK

- Caraga Food Innovation Center (CFIC) – CSU FIC
- Regional Agri-Aqua Innovation System Enhancement (RAISE) in Caraga logo
- CSU Cultural Mark
- Caraga State University (CSU)

INDUSTRIAL DESIGN

- CSU Covered Walkway

INTELLECTUAL PROPERTY PROSECUTION

Responded Substantive Examination Reports for:

- An Insect Trap
- Automated Dust Suppression and Monitoring System
- An Apparatus for Demonstrating Projectile Motion and Free-fall Body
- A Device for Molding Cocoa Mass into Tablea
- A Device for Slicing Snack-based Food Products

Responded Formality Examination Reports for:

- A Device for Extracting Sago Starch
- A Weight-based Fuel Consumption Metering Device for Engine
- A Device for Slicing Snack-based Food Products
- Monitoring and Controlling of Floating Photovoltaic System
- A Portable Workstation Desk

Conducted Early Search Reports for:

- An Integrated Machine for Processing Potatoes
- A Device for Harvesting Agricultural Compost
- A Processing Device for Cacao Beans
- A Portable Device for Harvesting Fleshy Drupes
- A Mixture of Plant Extracts for Hair Growth Promotion

INTELLECTUAL PROPERTY PROSECUTION

PERFORM TECHNOLOGY SEARCHES, PATENT ANALYSIS, AND PAS REPORTS (25)

- Process of Preparing Gluten-Free Brownies
- A Processing Device for Corn
- An Automated Brooding System
- Bio-Briquette Composition and Method of Making thereof
- Brownies Composition using Giant Swamp Taro
- Automated Deep-Frying Machine
- Hydrophobic Bag
- Device for Compacting Biomass Material
- Unmanned Surface Vehicle for Water Quality Monitoring with Fish Finder
- Flour Extracting Device
- Composition and Method for Preparation of Soil Inoculant as Suppressor of Soil-Borne Pathogens
- Energy Monitoring and Controlling System
- A Covering Device Against Weather Elements for an Automobile
- A Filter Paper
- Method for localizing the conversion of metal layer into transparent metal oxide using droplets
- Smart Battery System
- Robotic Irrigator
- Biochar-based Biofilter for Wastewater Treatment
- A Method for Producing a Fruit-Based Powdered Food Product
- An Educational Apparatus for Teaching Trigonometric Lessons
- Automated Soil Sampling and Storage System for Unmanned Ground Vehicles
- A Fishing Accessory
- Starch-Based Processing Device
- A composition comprising silica from Rice Husk Ash (RHA) and process of making thereof for silicone sealant
- An Automated Clothesline Retrieval System

REGISTERED COPYRIGHTS

The TTLO's dynamic involvement in handling requests and protecting intellectual assets, ensuring their rightful recognition, has successfully awarded four (4) valuable academic resources for copyrights as listed below:

Participation and Teaching Assistantship (Field Study 2) by Julie S. Berame, Minie L. Bulay, Leo L. Codilla, Jr., Ariel U. Cubillas, Maris T. Lasco, Gladys L. Lagura, Rissa L. Mercado, and Marichu D. Tulang

- Filing Date: January 26, 2024
- Registered: February 19, 2024

Laboratory Workbook in Developmental Biology by Joycelyn C. Jumawan and Jashin J. Rosal

- Filing Date: January 29, 2024
- Registered: February 19, 2024

Laboratory Workbook in Genetics by Shirlamaine Irina M. Calagui, Florence Jhun F. Almadin, Archie A. Along, Rovelyn P. Gallego, Jashin J. Rosal, and Chennie S. Naling

- Filing Date: February 26, 2024
- Registered: March 20, 2024

Guide to the Philippine Medicinal Plants Utilized by Butuanon by Dr. Leila Ombat, Dr. Meljan Demetillio, Mr. Jonathan Ian Ponio, and Mr. Bluman Tiongson.

- Filing Date: May 7, 2024
- Registered: July 22, 2024



LIST OF IP AWARENESS SEMINARS

The Technology Transfer and Licensing Office (TTLO) has conducted and participated in various Intellectual Property (IP) awareness activities, both within the university and in external engagements. These initiatives include organizing seminars, workshops, and training sessions aimed at educating faculty, students, and the external community on the importance of IP protection and its role in innovation. TTLO has also collaborated with external stakeholders to promote IP awareness and share the value of intellectual property rights in research, development, and commercialization.

Basics of IP and Patent Search Activities

- Basic IP Rights and Patent Searching Seminar Workshop (March 8, 2024)
- Basics of Intellectual Property and Patent Search Report
- Fundamentals of Intellectual Property and Patent Searching Seminar Workshop
- Training-Workshop on Intellectual Property Management and Patent Search (October 9-10, 2024)
- Seminar-Training on IP Awareness (October 11, 2024)
- Workshop on IP Protection for Social Science (October 23, 2024)
- Basics of Intellectual Property Seminar (December 3, 2024)
- Awareness on Basics of Intellectual Property (IP) in Saint Michael College of Caraga (SMCC)
- Intellectual Property Awareness Seminar in Northern Mindanao Colleges, Inc
- IP Awareness: Basics of IP in Basag Elementary and Basag National High School
- IP Awareness Search and Draft of Patent Document in Northeastern Mindanao State University

Patent Drafting Activities

- Patent Drafting Workshop (August 21-22, 2024)
- Innovation Express: From Search to Draft (April 22-24, 2025)

TECHNOLOGY COMMERCIALIZATION



CARAGA
STATE UNIVERSITY
PHILIPPINES

MapX: Revolutionizing Real Property Tax Mapping and Assessment

MapX is an innovative platform designed to provide end-to-end solutions for local government units (LGUs) and real property owners. By leveraging cutting-edge technologies like Web Geographic Information Systems (GIS), Artificial Intelligence (AI), and blockchain, MapX simplifies and enhances the tax mapping, valuation, and collection processes. This article explores the features, achievements, and ongoing implementations of MapX across the Philippines.

Recent Developments

Butuan City System Updates

On June 5, 2024, the City Assessor's Office of Butuan visited MapX to review system updates aimed at simplifying the generation of market value schedules for their general revision. These enhancements boost efficiency and usability for LGU staff engaged in tax mapping activities.

Expansion in Northern Mindanao

MapX has successfully reached most cities and municipalities in the Caraga region. It is now expanding into Northern Mindanao, starting with collaborations with LGUs in Oroquieta City and Mambajao, Camiguin.

Oroquieta City Phase 2 Launch

Supported by DOST Misamis Occidental, Phase 2 of the MapX project aims to complete the digitization of Oroquieta's tax mapping system. Following Phase 1's success—digitizing 17,495 properties—the city allocated additional funding for further improvements.

Mambajao Implementation

Under DOST's Smart and Sustainable Communities Program (SSCP), LGU Mambajao adopted MapX to upgrade its tax mapping system. The project includes training for municipal staff and aims to optimize revenue collection through efficient property assessments.

Collaboration with Batac City

In partnership with DOST Region 1, LGU Batac held a virtual meeting with MapX representatives to explore automating their real property tax processes. The demonstration showcased how MapX can expedite updates to scheduled market values while maintaining ease of use.

Impact on Local Governance

MapX addresses long-standing issues faced by LGUs in real property tax collection, such as outdated valuation references and inefficient manual processes. By integrating modern technologies like GIS mapping, AI-driven valuation, and blockchain-based transactions, it empowers LGUs to:

- Enhance transparency in tax assessments.
- Improve efficiency in monitoring and collection.
- Ensure equitable distribution of tax burdens among property owners.
- Increase revenue potential through streamlined operations.

Looking Ahead

With its proven success in Caraga and expanding reach into other regions like Northern Mindanao and Ilocos Norte, MapX continues to demonstrate its potential as a transformative tool for local governance. Through partnerships with DOST initiatives such as SSCP, it paves the way for smart cities that prioritize accuracy, efficiency, and sustainability in delivering public services.

MapX exemplifies how innovation can bridge gaps in traditional systems while fostering collaboration between government agencies and technology providers. As more LGUs adopt this platform, it is poised to redefine real property management across the Philippines.

Over the past five years, MapX has successfully generated a total of ₱13.29 million in gross revenue through government-to-government transactions. This achievement highlights the platform's effectiveness in streamlining real property tax mapping and assessment processes, contributing to enhanced revenue generation for local government units (LGUs).

LINKAGES & PARTNERSHIPS



CSU, IPOPHL STRENGTHEN PARTNERSHIP TO PROMOTE INTELLECTUAL PROPERTY IN CARAGA



The photos highlight the conduct of the Industrial Design and PCT Training for Regional Innovation by CSU RDI Centers (cum Meeting with IPOPHL) last April 16, 2024, at the Auditorium CSU HERO Learning Commons.

CSU's Technology Transfer and Licensing Office (TTLO) participated in a series of discussions with the Intellectual Property Office of the Philippines (IPOPHL) aimed to improve the intellectual property landscape in the Caraga Region on April 16, 2024.

The activity involved discussion to map the Regional Development Plan of the office and sessions on Industrial Design Protection and Patent Cooperation Treaty with IPOPHL personnel Engr. Chamlette Garcia and Mr. Dindo Dumali as resource persons.

CSU President Dr. Rolyn C. Daguil, VP for Research, Innovation, and Extension (VPRIE) Dr. Jeffrey T. Dellosa, and TTLO Director Kenneth Ciudad also participated in a strategic meeting where a potential roadmap was conferred to TTLO, which highlights hosting a regional caravan this year.

Caraga State University Supports GRIND in Recognizing Grassroots Innovators and Communities

On February 28, 2024, the Department of Science and Technology (DOST) Caraga launched the Grassroots Innovation for Inclusive Development (GRIND) project. The kick-off ceremony was held at the Watergate Hotel in Butuan City. It began an initiative to empower disadvantaged communities in the Caraga region through targeted science and technology interventions.

The GRIND program promotes inclusive development and supports innovators within traditionally marginalized communities. The program provides necessary S&T interventions to empower disadvantaged sectors, including women, out-of-school youth, and IP communities.

To support the implementation of this program, Caraga State University, represented by Dr. Jeffrey T. Dellosa, the VP for Research, Innovation, and Extension, has signed a Memorandum of Understanding with the Department of Science and Technology (DOST) Caraga. Other regional higher education institutions (HEIs) have also supported the initiative. The GRIND initiative is a significant step towards promoting inclusive development in the Caraga region and empowering communities traditionally underrepresented in the field of innovation.



The photos highlight the signing of the Agreement and Commitment of Support between Caraga State University, DOST Caraga, and other stakeholders for the implementation of Project GRIND held on February 28, 2024, at the Watergate Hotel, Butuan City.

Caraga State University Pioneers Food Innovation and Safety Program with New MOA Signing

On February 27, 2024, Caraga State University's Food Innovation Team participated in the launch of the Food Innovation and Safety Program at Watergate Hotel, Butuan City. The program aims to promote food safety through a regulatory framework and best practices in production and handling across the Caraga region, with attendees from government agencies, private sectors, academic institutions, and food manufacturers.

Dr. Jeffrey T. Dellosa, Vice President for Research, Innovation, Extension, and Higher Education Institutions, emphasized the need for a Regional Sensory and Testing Laboratory to ensure safe and sustainable food supply. He also signed a Memorandum of Agreement (MOA) for the project "Accelerating Food Research and Innovation in Caraga," which focuses on advancing food security and safety through technological innovation.

The MOA solidifies CSU's commitment to food safety and innovation by supporting research, providing training for local producers, and enhancing knowledge of regulations and best practices. The event successfully united stakeholders to promote a healthier food system in the Caraga region.



The photos highlight the signing of the Agreement between Caraga State University, DOST Caraga, and other stakeholders for the establishment of the Regional Sensory & Testing Laboratory and the Launching of the Food Innovation & Safety Program on February 27, 2024, at the Watergate Hotel, Butuan City.

CSU Partners with USAID-EcoWeb and GreenFiber Project for Renewable Energy Facilities to communities

CRAFT has partnered with USAID-EcoWeb and Barangay Kolambugan in Sibagat, Agusan del Norte, to establish renewable energy-powered abaca processing facilities and equipment provided by the GreenFiber project. This partnership has made significant strides in promoting environmental sustainability, community empowerment, and economic development.

The GreenFiber project uses renewable energy sources for abaca processing to reduce the carbon footprint and promote cleaner production. By using local resources and expertise, the project aims to create a sustainable model that other communities can follow.

Key initiatives and achievements of this partnership include:

1. Installation of Renewable Energy Systems
2. Capacity Building and Training
3. Economic Development
4. Environmental Sustainability
5. Community Empowerment

The groundbreaking ceremony for the renewable energy-powered abaca processing facilities took place on February 6, 2024. Representatives from CRAFT, USAID-EcoWeb, and Barangay Kolambugan attended the event, marking the beginning of a new chapter in sustainable development for the region. The success of this partnership serves as a model for collaborative efforts in addressing global environmental challenges, demonstrating the potential for innovative solutions to drive positive change.



Photo documentation during the Groundbreaking Ceremony for the USAID EcoWeb Project with the Center for Robotics, Automation, and Fabrication (CRAFT) on February 6, 2024, at Brgy. Kolambugan, Butuan City.

Caraga State University and Wadhwani Foundation Join Forces to Foster Digital Innovation and Entrepreneurship

The Navigatu Technology Business Incubator (TBI) played a pivotal role in facilitating the signing of a memorandum of understanding between Caraga State University and the Wadhwani Foundation. The main objective of this collaboration is to provide entrepreneurship education to all Caraga State University students, with the goal of transforming the university into a Digital, Innovative, and Entrepreneurial University by 2028.

The representatives from the Wadhwani Foundation, Mr. Lucrecio D. Delgado, Jr., South- East Asia Regional Director, and Ms. Mary Rose Ofianga, Program Manager, were present during the ceremony. Dr. Rolyn C. Daguil, CSU President, Dr. Jeffrey T. Dellosa, CSU Vice President for Research, Innovation, and Extension, and Mr. Melbert R. Bonotan, CSU TBI Director warmly welcomed the delegation from the Wadhwani Foundation.



The photo highlights the signing of Agreement between Caraga State University and Wadhwani Foundation on January 30, 2024, at HERO Learning Common, Caraga State University.

CEPRIC and Agusan del Norte Energy Sector Representatives Hold Collaborative Meeting



The Energy and Power Research and Innovation Center (CEPRIC) at Caraga State University – Cabadbaran Campus, led by CEPRIC Director Engr. Erickson A. Tacda, recently organized a highly successful consultative meeting on January 24, 2024, with key players in the energy sectors. The meeting, held at the CSUCC Conference Room, brought together representatives from both the academe and energy sectors to align goals and explore collaborative opportunities that can drive positive change and contribute significantly to advancing energy and power sectors.

The meeting was attended by personalities from the academe and energy sectors. Notable attendees included Dr. Jeffrey T. Dellosa, the Vice President for Research, Innovation, and Extension (VPRIE), Prof. Alvin M. Sevilla, Division Chief of Research, Development and Extension (RDE), Engr. Blondie T. Sanchez, Dean of the College of Engineering and Technology (CEIT), and CEPRIC faculty researchers from the academe. The energy sector was well represented by Engr. Fernando Javier, Senior Manager at NGCP, Jerico T. Gangca, TL Supervisor at NGCP, Engr. Joel Almonte, ANECO Technical Department Supervisor, and Engr. Arnel B. Alipao, IIEE–Agusan del Norte Chapter President.

Caraga State University (CSU) has also established eight (8) several partnership agreements through its Research and Development Innovation Centers to advance various initiatives and projects.

- Open Network Testbed Laboratory for Internet Technologies Deployment and Experimentation (ON-IDLE) project with the DOST ASTI
- Memorandum of Agreement between CSU and DOST Caraga for the Program "Accelerating Food Research and Innovation in Caraga: Safeguarding Food Security and Safety through Technological Advancements of the Food Innovation Centers"
- Memorandum of Agreement between CSU, DOST Caraga, ASSCAT, FSUU, NEMSU, SPUS, SJIT and SNSU. "Establishment of the Caraga Food Innovation Consortium"
- Memorandum of Agreement between CSU and Tagasaka Coconut Farmers Agriculture Cooperative (TACOFACO) "Transforming Coconuts into Value-Adding through Contract Research and Development"
- Memorandum of Agreement between Taligaman National High School on Training for Selected STEM Teachers
- Memorandum of Agreement between DepED Bislig City Division on Train-the-Trainers (TOT) program focusing on robotics and prototyping
- Memorandum of Understanding between Caraga State University and the Institute of Integrated Electrical Engineers
- MOU between the Institute of Photogrammetry and Geoinformation and the Caraga State University

CHALLENGES AND OPPORTUNITIES

Caraga State University (CSU) faces a variety of challenges and opportunities in its research and development (R&D) initiatives, particularly as it seeks to enhance its contributions to sustainable development in the Caraga region and beyond.



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CHALLENGES AND OPPORTUNITIES

- **Delays in Project Implementation:** Some project activities have experienced delays due to unforeseen setbacks and the lengthy timeline required for processing activity requests.
- **Dependency on Local Government Units (LGUs):** The execution of activities is contingent upon the responsiveness and cooperation of the target local government units (LGUs).
- **Need for a New Research Locale:** There is a necessity to identify a new research locale due to challenges in meeting documentary requirements for the current location.
- **Overlapping Workloads within the Research Team:** The research team is facing overlapping workloads, as many members hold additional administrative roles, which can impact their availability and focus on project activities.
- **Vehicle for Off-Campus Activities:** During the initial stages of the project, one of the prominent challenges was the absence of a dedicated vehicle to facilitate off-campus meetings and activities. The nature of the environmental project necessitates frequent visits to study points, community engagements, and collaboration with stakeholders. The lack of a designated vehicle posed logistical constraints, affecting the efficiency and timeliness of these crucial off-campus activities.
- **Inaccessibility to Internet at Study Points:** From a specific research perspective, an identified obstacle revolves around the inaccessibility to the internet at selected study points within the area. This limitation hampers real-time data transmission, hindering the prompt analysis and communication of findings.
- **Lack of Definite Source of Potable Water:** Another noteworthy problem identified is the absence of a definite source of potable water in the project area. This poses concerns for the well-being of the research team during field activities.
- **Lack of Knowledge in Programming a Database:** In the realm of ongoing research, a technical challenge emerged in the form of a deficiency in programming skills to develop a database for downstream processing of captured scientific data. Recognizing the significance of organized and streamlined data management, efforts are being made to upskill the research team.
- **CPD Points for Participants:** The upcoming training workshop, accredited by the Professional Regulation Commission (PRC), will provide participants with Continuing Professional Development (CPD) points applicable for the renewal of their PRC IDs. This nationwide training initiative is expected to attract a large number of participants from various divisions, necessitating the formation of an additional task force to assist during the workshop.
- **Availability of Teachers at Partner Schools:** The participation of teachers from our partner schools may be impacted by their commitments to school activities and other seminars mandated by the Department of Education (DepEd). This could affect their availability to attend the training.
- **Late Arrivals and Communication Gaps:** Participants frequently arrive late, indicating potential communication gaps during the event invitation process. Many expressed a preference for weekend events over weekdays, suggesting a need for stronger rapport with the community to encourage greater participation.
- **Transportation Challenges:** Participants encounter significant transportation issues, as the barangay is situated far from their respective puroks. This distance can hinder attendance and engagement in events.

CHALLENGES AND OPPORTUNITIES

- **Overlapping Workloads for Team Leader:** The team leader faces challenges due to overlapping workloads, balancing responsibilities across various instructional deliverables. This situation may impact the effectiveness of event planning and execution.
- **Securing Sustainable Funding:** Difficulty in obtaining consistent funding to support research and extension projects, requiring competitive proposals that align with regional and national priorities.
- **Keeping Up with Technological Advancements:** The rapid pace of technological change necessitates continuous skill development and resource allocation to stay current with new tools and methodologies.
- **Dependency on External Partnerships:** Reliance on collaborations with government agencies and educational institutions for support and resources can pose challenges if these partnerships are not effectively managed.
- **Resource Allocation for Training:** The need for ongoing training programs to enhance skills in STEM education, IoT-based systems, and renewable energy technologies may strain existing resources.
- **Administrative Burdens:** Overlapping workloads among team members due to additional administrative responsibilities can hinder project progress and efficiency.
- **Presence of Research Competitors:** There are numerous competing research entities vying for the same funding, making it more challenging to secure financial support.
- **Limited Availability of Trained Personnel:** There is a shortage of well-trained staff to develop external funding proposals and manage technology business incubation efforts.
- **Attractive LGU Support:** Local Government Units (LGUs) provide comprehensive financial support (including transportation allowances and startup supplies) for participants in their extension programs. As a result, participants may prefer LGU initiatives over school-led extension projects.
- **Insufficient Follow-Up on Extension Activities:** Limited manpower and the heavy workload associated with office and personnel tasks hinder effective follow-up on extension activities.
- **Weak Community Participation:** There is a lack of strong community engagement, resulting in difficulties in adopting or sustaining extension projects.
- **Insecurity of Tenure:** The lack of tenure security within the office contributes to a high turnover rate among staff, which can disrupt continuity and institutional knowledge.
- **Absence of Clear Transfer Policies:** The absence of well-defined policies and protocols for personnel transfers between offices within the university leads to operational disruptions and inefficiencies.
- **Inconsistent Communication Protocols:** Variability in communication protocols, such as the requirement for three signatories alongside bureaucratic processes and excessive documentation, results in delays and underutilization of project funds, particularly for externally funded initiatives.
- **Inefficient Financial Management Processes:** There is a lack of specific financial management procedures and streamlined administrative protocols, especially in the procurement process for externally funded projects and programs (e.g., TRF), which hinders effective resource allocation.

CHALLENGES AND OPPORTUNITIES

- **Limited Resources and Communication Gaps:** There are significant resource constraints and communication barriers within CEPRIC, hindering effective collaboration and project execution.
- **Challenges in Collaboration with RDIE Centers:** Difficulty in collaborating with other Research, Development, and Innovation (RDIE) centers for project proposals limits opportunities for joint initiatives.
- **Need for Faculty Commitment:** A stronger commitment from affiliated faculty researchers is essential for timely submission of proposals, which is critical for securing funding and advancing projects.
- **Academic Load and Lack of Motivation:** Students face a heavy academic load, which diminishes their motivation to pursue innovations or startups, viewing them as additional burdens that conflict with their studies.
- **Skills Gap in Incubatees:** While there are promising startup ideas, students entering the incubation program often lack the necessary skills to develop their products, highlighting a gap between academic training and industry needs.
- **Insufficient Personnel for Mentoring:** With the university operating two Technology Business Incubators (TBIs), there is a critical need for one-on-one mentoring to assess and support each startup team. However, the TBIs lack full-time personnel and administrative staff, making it challenging to manage the complex demands of each request.
- **Limited Operational Budget:** The TBIs do not have a dedicated budget for their operations beyond project funding, which restricts their ability to function effectively.
- **Inadequate Facilities for Product Development:** There is a lack of essential facilities for product development, such as servers, API subscriptions, and tools needed to expedite startup product development. Additionally, there is no university policy for integrating various innovation hubs into the TBI for product development related to technology commercialization.
- **Intellectual Property (IP) Challenges:** Most university technologies lack granted IP applications, which hampers their potential for commercialization.
- **Absence of Spin-Off Policy:** The lack of a spin-off policy limits commercialization opportunities and reduces faculty interest in pursuing innovative projects.
- **Underdeveloped TBI Facilities:** The bare facilities of the TBI and insufficient incentive budgets for students limit its appeal and effectiveness in encouraging innovation, especially given the prevailing mindset that prioritizes employment over startup development.
- **Focus on Technology Transfer:** Although the ATBI aims to incubate cooperatives (COOPs) and micro, small, and medium enterprises (MSMEs), many of these enterprises excel in production but lack innovation capabilities. Consequently, the ATBI focuses on technology transfer from the university; however, there is no inventory of available products from theses or research outputs ready for commercialization by these

FUTURE GOALS AND INITIATIVES



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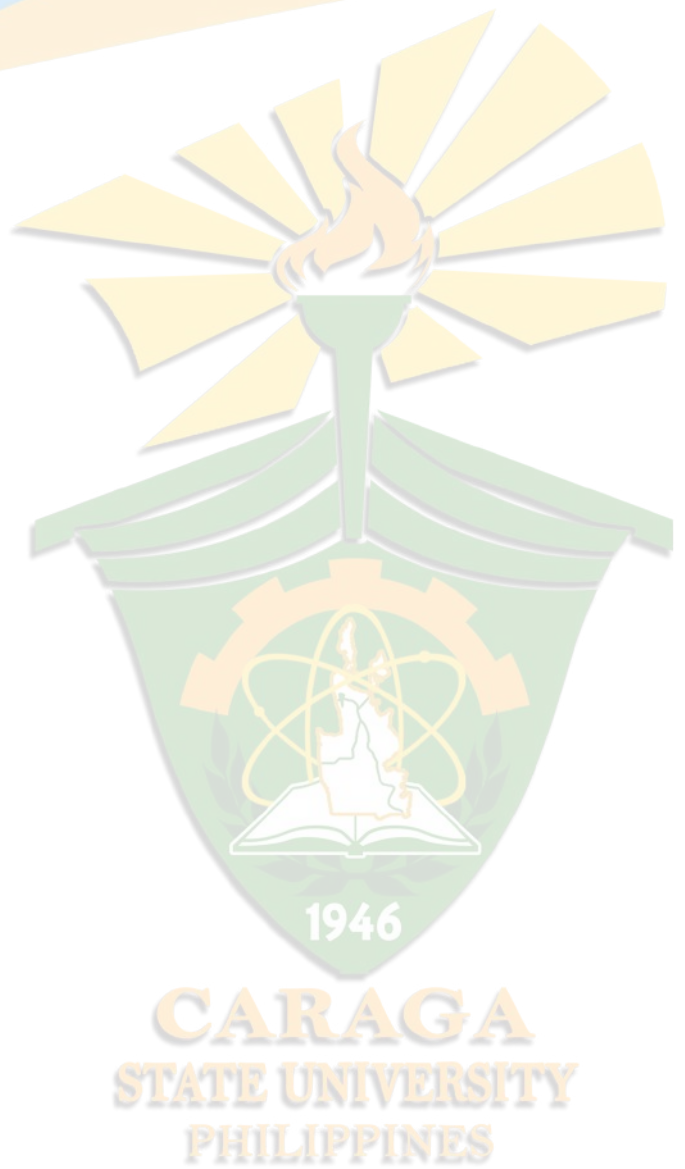
- **Complete Remaining Training and Activities:** Finalize any outstanding training sessions, activities, and travel arrangements.
- **Initiate Research Writing and Module Preparation:** Begin the process of writing research findings and preparing the final output module.
- **Present Research Results to Communities:** Schedule and conduct presentations of research results and outputs to the communities by November.
- **Logistical Constraints Due to Lack of Vehicle:** The absence of a designated vehicle has created logistical challenges that hinder the efficiency and timeliness of essential off-campus activities. To address this issue, options for acquiring a suitable vehicle should be explored, including rental agreements and potential partnerships to fulfill the project's mobility needs.
- **Connectivity Challenges During Fieldwork:** To overcome connectivity issues encountered during fieldwork, alternative strategies such as using offline data collection tools and implementing a systematic data transfer plan during periodic internet access windows have been proposed. These solutions aim to preserve data integrity despite connectivity limitations at certain study locations.
- **Addressing Potable Water Source Gaps:** To tackle the lack of accessible potable water sources, government initiatives should be launched in collaboration with local authorities and communities. This effort should focus on identifying sustainable water sources and implementing effective water purification measures, ensuring a safe and reliable water supply for researchers and the success of field activities.
- **Mitigating the Shortage of Database Programmers:** To address the shortage of database programming expertise, the institution could arrange training sessions, seek external expertise, or explore partnerships with other institutions or individuals who possess the necessary programming skills.
- **Monitoring and Evaluation Post-Training:** Following the training and workshops, the extension team will conduct visits to the respective schools for monitoring and evaluation, providing support for the implementation of action research initiatives.
- **Identify Additional Funding Sources:** Actively seek out more funding agencies to secure financial support for the project.
- **Prepare Research Outputs for Publication:** Compile and document the extension project outputs and collected data
- **Establish a Gender and Development (GAD) Core/Watch Group:** Form a dedicated GAD core or watch group to foster stronger connections and rapport with the community. This group will focus on addressing community concerns and promoting engagement.
- **Adjust Scheduling and Venue Options:** Consider scheduling events on Saturdays or Sundays to accommodate participants' preferences. Additionally, explore venues at Caraga State University (CSU) or within the community, and arrange transportation options such as jeepneys, vans, or coasters to facilitate attendance.
- **Delegate Tasks Among Team Members:** Assign specific tasks to individual team members to effectively manage workloads and alleviate work overload. This delegation will enhance efficiency and ensure that all responsibilities are addressed in a timely manner.
- **Adoption of New Technologies:** Implement new technologies to address existing limitations and enhance project effectiveness.
- **Enhancement of Teamwork and Collaboration:** Foster improved teamwork and internal collaboration to streamline processes and increase productivity.

FUTURE GOALS AND INITIATIVES

- **Strengthening Connections with Stakeholders:** Build stronger relationships and partnerships with Local Government Units (LGUs), non-governmental organizations (NGOs), and other institutions to enhance support and resources.
- **Exploration of New Research Opportunities:** Seek out new research opportunities through collaborative efforts with partners.
- **Pursuit of External Funding:** Actively pursue external project funding to secure the necessary resources for initiatives.
- **Collaboration with RDIE Centers:** Strengthen partnerships and collaboration with Research, Development, and Innovation (RDIE) centers to drive successful initiatives.
- **Proposal for Revised Organization and Staffing Standards (ROSS):** Submit a proposal from the Office of the Vice President for Research, Development, and Innovation (OVPRDIE) regarding the Revised Organization and Staffing Standards for personnel assigned to the Technology Transfer and Licensing Office (TTLO).
- **Development of Clear Policies for Contract Termination:** Establish a clear policy and protocol for CSU personnel who wish to terminate their signed work contracts early, ensuring a structured process is in place.
- **Implementation of Comprehensive Training and Communication:** Conduct thorough training sessions and a comprehensive information campaign to provide clear instructions on communication protocols and other essential operational procedures before their implementation.
- **Collaboration Between FMS and Administrative Units:** Facilitate dialogue between the Financial Management Services (FMS) and administrative units to develop streamlined, efficient, and effective policies and protocols that align with funding sources in accordance with Department of Budget Management (DBM), Civil Service Commission (CSC), and Commission on Audit (COA) regulations.
- **Develop a Comprehensive Database of Faculty Expertise:** Create a detailed database that catalogs faculty expertise and research interests. This resource will facilitate the formation of interdisciplinary research teams and foster collaborations with external partners.
- **Establish a Centralized Information Platform:** Implement a centralized platform to disseminate information about funding opportunities, workshops, and capacity-building activities for faculty researchers. This will ensure that faculty are informed about available resources and opportunities to support their research initiatives.
- **Enhance Monitoring and Evaluation Processes:** Strengthen the monitoring and evaluation frameworks for research and extension projects to ensure alignment with CSU's Research, Development, and Extension (RDE) goals. This will help guarantee that projects achieve their intended outcomes and make meaningful contributions to regional development.
- **Encourage Faculty Research Output:** Actively encourage and support faculty members in producing relevant research outputs, developing proposals for external funding, and pursuing publication and commercialization of their research findings.

ANNEXES





VISION

A socially-engaged digital, innovation, and entrepreneurial university excelling globally in science, engineering, and the arts by 2028.

MISSION

As a transformative university, CSU is a responsible steward of problem-solvers and value creators who are driven to create a sustainable future for the region, the nation, and beyond.

CORE VALUES

Competence **S**ervice; and **U**prightness