Research Paper

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"Enhancing Poverty Alleviation through Skills Development In Basic Closed-Circuit Television (CCTV) Planning, Installation, And Commissioning: An Extension Activity In Barangay Quezon, Surigao City"

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ABSTRACT:- This report outlines the "Basic Closed-Circuit Television (CCTV) Planning, Installation, and Commissioning" project conducted in Barangay Quezon, Surigao City, led by the BS Electronics Engineering CEIT program. The initiative aimed to enhance community members' technical skills in CCTV systems to improve their livelihood opportunities and comply with national security mandates. The project began with initial engagements, including site visits and discussions with Barangay officials to establish the scope of the training. A Training Needs Assessment was conducted to tailor the program to community needs, followed by a formal partnership through a Memorandum of Agreement (MOA) between Surigao del Norte State University (SNSU) and Barangay Quezon. A four-day onsite training was implemented, covering theoretical and practical aspects of CCTV systems. The program concluded with a practical skills assessment and a culmination ceremony. The training saw high community engagement and effective skill acquisition, with participants successfully demonstrating their ability to install and maintain CCTV systems. Despite challenges such as scheduling conflicts and venue conditions, the project was well-received, highlighting the need for localized and hands-on technical training. Positive feedback underscored the program's impact, fostering stronger ties between the university and the community. This project not only achieved its educational goals but also laid the groundwork for future community development initiatives, demonstrating the value of collaborative extension activities in enhancing local skills and safety.

I. INTRODUCTION

In recent years, security concerns in the Philippines' urban and rural areas have led to a growing demand for surveillance systems, particularly Closed-Circuit Television (CCTV) installations. However, many communities, especially in smaller barangays like Barangay Quezon in Surigao City, face challenges due to a lack of technical knowledge and skills in planning, installing, and maintaining these systems (1). The problem stems from limited access to affordable training programs, which hinders residents from participating in livelihood opportunities related to electronics and security system installations (2). Furthermore, the Department of the Interior and Local Government (DILG) has mandated the installation of CCTV systems in various business establishments and residential areas for safety and security purposes. Yet, compliance remains low in many barangays due to a shortage of skilled individuals who can install and maintain these systems (3).

This study aims to address this gap by providing community-based training on "Basic Closed-Circuit Television (CCTV) Planning, Installation, and Commissioning." The training aims to empower residents with the necessary technical skills to plan, install, and maintain CCTV systems, enabling them to comply with government mandates while creating opportunities for additional sources of livelihood (4). Specifically, the training seeks to answer the following research questions: (1) What is the participants' level of knowledge and

skill before and after the training? (2) How can implementing CCTV systems improve security and compliance in Barangay Bonifacio? (3) What are the challenges participants face during the installation and commissioning process, and how can these be addressed through future training? By investigating these questions, the study aims to create a replicable model for other barangays to follow, enhancing security and local employment opportunities.

The significance of the study lies in its potential to improve individual livelihoods and community safety. By equipping residents with in-demand technical skills, the training can help mitigate the problem of unemployment while simultaneously addressing the safety and security needs of the barangay. Additionally, the study recognizes certain delimitations, including the focus on CCTV systems, the barangay-specific scope, and the reliance on face-to-face training methods. It assumes that participants have a basic understanding of technology and are motivated to apply the skills learned. This initiative aligns with the national agenda for inclusive development and local capacity-building, as articulated in various government policies, including the Enhanced Community-Based Monitoring System (CBMS) Act of 2019, emphasizing the importance of local empowerment and data-driven community improvement.

II. REVIEW OF RELATED LITERATURE

In the Philippines, installing and using Closed-Circuit Television (CCTV) systems have gained increasing importance due to the rising need for security and surveillance. Republic Act No. 10173, also known as the Data Privacy Act of 2012, governs the use of CCTV systems by regulating data privacy and ensuring that footage is used appropriately (5). Moreover, the Department of the Interior and Local Government (DILG) has issued Memorandum Circular 2014-119 (6), mandating the installation of CCTVs in business establishments to strengthen public safety and security (7). This ordinance has been adopted by many local government units (LGUs), particularly in urban centers, to enhance crime prevention and monitoring (8).

In Mindanao, particularly in areas with heightened security concerns (9), CCTV systems have become a crucial tool for both public and private sectors (10). LGUs in Mindanao, including those in Surigao City (11), have increasingly adopted ordinances that require CCTV installation in business establishments and public spaces (12). However, despite this requirement (13), there is still a gap in technical knowledge and awareness regarding proper CCTV installation and maintenance within local communities (14). Programs that aim to provide training in CCTV planning, installation, and commissioning play a vital role in addressing this gap, fostering community security and individual capability (15).

Acquiring skills in CCTV installation offers significant livelihood opportunities, especially in areas with increasing demand for security systems (16). For residents, these skills can translate into income generation by either starting a small business or offering services to install and maintain CCTV systems for businesses and residences (17). Moreover, the DILG's mandate for widespread CCTV installation ensures that the demand for these skills will continue to grow, making it a sustainable source of employment. Thus, training programs that impart these technical skills not only empower individuals but also contribute to the community's overall safety and economic development.

III. OBJECTIVES

The objectives of the "Basic Closed Circuit-Television (CCTV) Planning, Installation, and Commissioning" program in Barangay Quezon are focused on skill development, community safety, and collaboration. The program aims to equip participants with technical knowledge in CCTV installation and maintenance, providing them with valuable skills for livelihood opportunities. By enhancing the security infrastructure in Barangay Quezon, the program supports the local community in complying with DILG mandates for security system installations. Additionally, the initiative fosters collaboration between Surigao del Norte State University (SNSU) and the local government of Barangay Quezon through a formal Memorandum of Agreement. This partnership ensures the training is tailored to meet the barangay's needs. Ultimately, the program contributes to both individual empowerment and the community's overall safety.

IV. CONCEPTUAL FRAMEWORK

Different strategies were applied before and after the extension endeavor to obtain and address each of the objectivesvor. Implementing strategies were carried out as follows:



Figure 1: Conceptual Framework of the Extension Activity

1. Survey -A survey will be administered to measure the participants' socio-economic status. Then, the level of knowledge and skills will also be measured through the survey. After the extension activities, the same survey materials will be administered to measure the impact of the extension activity.

2. Training/Seminar – To familiarize the components and design electronics plan of closed-circuit television CCTV, the Department of Electronics Engineering faculty and students will present the concepts behind the CCTV and provide learning notes and modules for them to memorize the CCTV system. To be able to install, configure, and operate the CCTV system, the faculty and students of the Department of Electronics Engineering will conduct the demonstration for the implementation of the CCTV system.

3. Impact Assessment - Conducting an impact assessment after participants have acquired the skill set and can generate livelihood is essential for several reasons. It enables the organizers to evaluate the effectiveness of the training in terms of improved economic outcomes and livelihood opportunities for the participants. The assessment can also reveal how effectively participants apply their skills in real-world settings, such as securing employment or establishing businesses in CCTV installation and maintenance. Additionally, it helps identify gaps or challenges that may need to be addressed in future training programs. Moreover, the impact assessment provides insights into the broader benefits to the community, including enhanced security and compliance with government regulations. Lastly, it serves as a foundation for scaling the program to other communities, ensuring its sustainability and adaptability in different contexts.

4. Feedback Loop- The feedback loop in the conceptual framework is crucial for sustaining and improving the extension activity and several other reasons. First, it allows for continuous monitoring of the program's effectiveness, providing real-time data on how well the training objectives are being met. Second, participant, trainer, and community stakeholder feedback helps identify unforeseen challenges or barriers that may arise during the implementation phase. Third, the feedback loop encourages adaptive learning, where the program can be modified or adjusted based on the responses and experiences of the participants, ensuring that it remains relevant and effective over time. Furthermore, it fosters accountability and transparency by involving stakeholders in the evaluation process, enhancing trust and engagement with the program. Lastly, a robust feedback loop promotes the sharing of best practices, enabling other communities or extension programs to benefit from lessons learned, making the initiative scalable and adaptable across different contexts.

V. RESULTS AND DISCUSSION

To ensure that the extension activities fit the community's needs, the BSECE program has conducted a training needs assessment survey. The survey was conducted by Dr. Monalee Dela Cerna using Google Forms and an actual survey, as shown in Figure 2. The target beneficiaries of the planned extension activities were submitted with the support of the Barangay Officials. Figure 2 shows the results of the survey, which uses descriptive statistics. The CCTV proves to be the needed training for the targeted beneficiaries.



Figure 2a. Google forms

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MOA SIGNING

Figure 2b. Results of the TNA

Both parties crafted a Memorandum of agreement. The Surigao del Norte State University and the Local Government of Barangay Bonifacio agreed, and the MOA was approved by the Board of Regents (BOR) with Res.No. 45, S.2023, and a ceremonial MOA Signing Activity was conducted last June 26, 2023, at LRC Resource Learning Center, SNSU Main Campus, Narciso Street, Surigao City. Our university president, Dr. Gregorio Z. Gamboa, Jr., vice president of research innovation and extension, Dr. Rommy June Sunico, and Dean of CEIT Engr participated in the momentous event. Robert R. Bacarro, CEIT Extension Coordinator Dr. Monalee Dele Cerna, Extension Director Ms. Alvie Plaza, CEIT Faculty and Students as shown in Figure 4. Also, the faculty involved in the extension activities will have an MOA with the university President, as shown in Figure 4d.

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Figure 4a. BOT Approval



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ARTICLE II

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Figure 4b. Signed MOA Between SNSU and LGU Brgy. Quezon, Surigao City

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IN WITNESS WHEREOF, the PARTIES have hereunto set their hands this _____ day of ______ at Surigao del Norte State University, Surigao City, Philippines.

Figure 4c. Signed Commitment MOA between the Extensionist and the University President





Figure 4d. MOA Signing Ceremony

ON-SITE FACE-TO-FACE TRAINING

The implementation of the extension activity titled "BASIC CLOSED CIRCUIT-TELEVISION (CCTV) PLANNING (ELECTRONICS DESIGN), INSTALLATION (TERMINATION & WIRING), AND COMMISSIONING (CONFIGURATION & MAINTENANCE" was onsite face to face. A request letter with approval from the university president was submitted to establish a proper extension activity, as shown in Figure 5a. The approved request letter provides a memo to travel, as shown in Figure 5b.



July 26, 2023

Republic of the Philippines SURIGAO DEL NORTE STATE UNIVERSITY Narciso Street, Surigao City 8400, Philippines



DR. GREGORIO Z. GAMBOA, JR.

University President Surigao del Norte State University Surigao del Norte

> THRU: ROMY JUN A. SUNICO, DTE VP - RIE

Dear Sir.

Greetings of Peace and Prosperity!

I hope this letter finds you in good health and high spirits. I am writing to formally request your kind permission and support for our upcoming extension activities titled "BASIC CLOSED-CIRCUIT TELEVISION COTV PLANNING (ELECTRONICS DESIGN), INSTALLATION (TERMINATION & WIRING) AND COMMISSIONING (CONFIGURATION & MAINTENARCE".

Date	Barangay	Extension Activity	Faculty Involved and Role			
July 20, 2023 Bariangay Bonitacio, Sudgao del Norte July 30, 2023 Barangay Bonitacio, Sudgao del Norte		Safety Orientation in Working CCTV installion Zerministration of Electronics Code in CCTV installation Standards in CCTV installation Stonewidge Development on Minimum Standards in CCTV Installation 4. Presentation of the Requisites of CCTV planning and installation	Engr, Visian Jay V, Yleya Engr, Robert R, Bacamo Archt, Marter Selloso Dr, Monatee Delacerna Mr. Edagar Gardose (Student Extentionia Mr. Johnmark Marte (Student Extentionia			
		Actual CCTV planning and installation Individual Trainee Skills Presentation Culmination Program	Engr. Vitian Jay V. Ylaya Engr. Robert R. Bacarno Archt, Marton Solkoeo Dr. Monalee Deleterme Mr. Edagar Gardose (Student Extensionist) Mr. Johnmark Marte (Student Extensionist)			

Further, may we request for an issuance of memo to the above-mentioned faculty and request for a school vehicle to be used for the said activity.

We kindly request your favorable consideration and approval for this request. Thank you so much!

Yours Indy, ENGR, VRIAN JAY Y, YLAYA, PhEdD, PECE, MEng SNSU-Main Campus, BSECE Extension Coordinator Noted. DR. RONITA E. TALINGTING Campus Director Concurred: ALVIE ELMA C. PLAZA, MAeng Extension Director

Reteammending Approval ROMY JUNIA, SUNICO, DTE VP 4 BIE

APRROVED 11 2023

University President

Figure 5a. APPROVED REQUEST LETTER

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MEMORANDU	M	ADMIN-07-043 Series 2023	
DATE	July 27	2023	SNSU SURIGAO CITY
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ROM	: The UN	VERSITY PRESIDENT	
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DAY 1 and 2 TRAINING PROPER

The extension activity was properly started with a brief opening program, such as an inspirational message with the lovely Honorable Brgy. Captain Elmo L. Tuisa, as shown in Figure 6a, the Dean of CEIT Engr. Robert R. Bacarro also delivered his message about the university's goal & vision and shared his expertise on CCTV safety concerns, as shown in Figure 6b. Dr. Monalee Dela Cerna delivers her talk about the laws governing the implementation of CCTV in the Philippines, Archt. Marlon Solloso also explained to the participants the planning and installation of CCTV. Mr Edgar Gardose and Mr. Johnmark Marte demonstrated the installation, connection, and configuration of the CCTV Digital Video Recorder.

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Figure 6a. Attendance Day 1



Figure 6b. BRGY. CAPTAIN ELMO L. TUISA MESSAGE



Figure 6c. DEAN ENGR. ROBERT R. BACARRO



Figure 6d. ARCHT. MARLON SOLLOSO



Figure 6e. DR. MONALEE DELACERNA



Figure 6f. PARTICIAPANTS, EXTENSIONISTS, AND LGU BRGY QUEZON OFFICIALS



Figure 6g. PARTICIAPANTS, EXTENSIONISTS, AND LGU BRGY QUEZON OFFICIALS

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Figure 1h. ATTENDANCE DAY 2

DAY 3

The extension activity on the BASIC CLOSED CIRCUIT-TELEVISION (CCTV) PLANNING (ELECTRONICS DESIGN), INSTALLATION (TERMINATION & WIRING), AND COMMISSIONING (CONFIGURATION & MAINTENANCE) have commenced on the second and third days, as shown in Figure 7, which Mr. Marte and Mr. Gardose demonstrated the proper installation and commissioning of the CCTV. They also grouped the participants into three groups to build a support system and help each other finish the task. We provide step-by-step manuals and brochures to review and read in advance on the said topic.



Invasion of the Philippines Invasio DEL NORTE STATE UNIVERSITY anno Street, Gungao City 8400, Philippines



Republic of the Philippines BURBLAD DEL NORTE STATE UNIVERSITY Narves Street, Surgeo City 5400, Philippines

Basic Closed-Circuit Television CCTV Planning (Electronics Design), Installation (Termination & Wiring) and Commissioning (Configuration & Maintenance) Name of Activity / Event

Date: July 31, 2023 Verse: Brox. Genton, Suriaso City

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Figure 7a. ATTENDANCE DAY 3



Figure 7b. DEMONSTRATION ON CCTV



Figure 7c. DEMONSTRATION ON CCTV



Figure 7d. ACTUAL PARTICIPATION OF THE PARTICIPANTS

DAY 4 ASSESSMENT AND CULMINATION PROGRAM

After the basic theories and demonstration of the BASIC CLOSED CIRCUIT-TELEVISION (CCTV) PLANNING (ELECTRONICS DESIGN), INSTALLATION (TERMINATION & WIRING), AND COMMISSIONING (CONFIGURATION & MAINTENANCE), the extensionist conducted a group assessment on the actual CCTV installation and commissioning as shown in Figure 8. After their fearless implementation of actual demonstrations of their learning, the extension activities ended with a culmination program, as shown in the figure.

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Basic Closed-Circuit Television CCTV Planning (Electronics Design), Installation (Termination & Wiring) and Commissioning (Configuration & Maintenance) Name of Activity / Event

Date: July 28, 2023 Venue: Brgy, Quezon, Surigao City

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Figure 8a. ATTENDANCE DAY 4



Figure 8b. PARTICIPANTS ACTUAL ASSESSMENT



Figure 8c. PARTICIPANTS ACTUAL ASSESSMENT



Figure 8d. PARTICIPANTS ACTUAL ASSESSMENT



Figure 8e. PARTICIPANTS ACTUAL ASSESSMENT



Figure 8f. CULMINATION GIVING OF CERTIFICATES



Figure 8G. CULMINATION CLOSING PROGRAM

IMPLICATIONS

The "Basic Closed-Circuit Television (CCTV) Planning, Installation, and Commissioning" program has several significant implications for the local community and broader socio-economic development. Firstly, the program addresses critical gaps in technical expertise, empowering participants with in-demand skills in a growing industry. This improves individual employability and fosters local entrepreneurship by enabling residents to establish small CCTV installation and maintenance businesses. Secondly, the program enhances public safety by facilitating compliance with national security mandates, such as the DILG's requirement for CCTV installations in business and residential areas. Furthermore, the partnership between Surigao del Norte State University (SNSU) and local government units (LGUs) is a model for effective collaboration, showcasing how academic institutions can directly contribute to community development. This program also sets the groundwork for future community projects, reinforcing the role of localized technical training in fostering longterm economic growth and social empowerment.

RECOMMENDATIONS

It is recommended that future iterations of the program make the training materials more accessible by translating them into the local vernacular, ensuring better comprehension among all participants. Additionally, providing more training equipment or demo units would allow participants to gain more hands-on experience, thus accelerating their learning. Conducting a follow-up impact assessment after six months is also suggested to evaluate the program's long-term effects, such as employment outcomes or new business ventures initiated by participants. Expanding the scope of the training to include additional skills, such as computer literacy or fire detection system installation, would further enhance the livelihood opportunities for the community. Lastly, continuous collaboration with local government units and private sector stakeholders is vital to ensuring the sustainability and scalability of the program to other communities, further amplifying its positive

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