EVALUATING THE PERFORMANCE OF THE REHABILITATED IRRIGATION SYSTEM IN CENTRAL LUZON STATE UNIVERSITY

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(AB Land and Water Resources Engineering)

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ACCEPTANCE SHEET

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BIOGRAPHICAL SKETCH

The first author's name is Crisanto G. Niegos, the fifth child of Renato Niegos and Emilita Niegos. He was born on October 29, 2000, in Barangay Calisitan, Science City of Muñoz, Nueva Ecija. He strongly believes in the opportunities that education brings. That is why he completed his elementary education at Calisitan Elementary School with the first honorable mention. He continued his junior high school education at Muñoz National High School-Main and graduated with honors. Then, he pursued the Humanities and Social Sciences (HUMSS) academic track and completed it with high honors.

Through these exemplary achievements in his elementary and high school education, he believed that challenging himself out of his comfort zone and following a more challenging path enabled him to grow more independently. That is why he continued his academic pursuit and took the Agricultural and Biosystems Engineering for his bachelor's degree at Central Luzon State University.

Aside from his academic pursuits, he finds an interest in films and literature. He believes that films and literature enable people to find their true selves and understand the different experiences, concepts, and perceptions. By understanding these factors, he thinks that kindness and love for family and friends are still the most important things in pursuing his journey.

BIOGRAPHICAL SKETCH

The second author, Jimmie N. Solomon, was born on July 21, 2000, in Tabacao, Talavera, Nueva Ecija—the second among three children of Mr. Hilario R. Solomon and Mrs. Corazon N. Solomon. A resident of Tabacao, Talavera, Nueva Ecija. Jaica and John Chesther are her loving siblings.

Her educational journey began at San Jose Elementary School, where she completed her elementary education in April 2013. She finished her junior and senior high school education at Tabacao National High School with honors. Then, in 2019, at Tabacao National High School, she pursued the Academic Track–General Academic Subject.

Also, she is dedicated to her studies in Agricultural and Biosystems Engineering, focusing on AB Land and Water Resources Management at Central Luzon State University. Despite the misalignment of her academic track with her chosen profession, resulting in challenges, she successfully redirected her path with an unwavering commitment to her passion for agricultural engineering. The encouragement and guidance from her parents played a crucial role in pursuing her dreams.

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ABSTRACT

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The university rehabilitated the 2.44-kilometer deteriorating supply ditch canal to increase the irrigated areas and improve productivity in the selected R&D centers. The study evaluated the performance of the rehabilitated irrigation system by measuring the system delivery, productivity, and economic performance. The results show that a higher system delivery performance is obtained following a rotational irrigation scheme with a conveyance efficiency equal to 94.78% to 95.78% in outlets 5, 13, and 17, and field application efficiency equal to 74% to 86% in outlets 1, 9, and 14. The measured volume of water diverted weekly in the supply ditch canal was insufficient to reach some command areas. This may be effected by the ineffective cross sectional of the canal that was not covered in the rehabilitation. After the system's rehabilitation, the command areas, gross income, and output per command area were somewhat increased. From an economic perspective, after the rehabilitation, the selected command areas have a reduction in irrigation cost about PhP 6898.27/ha/year, PhP 31541.21/ha/year, and PhP 1137.68/ha/year in the upstream, midsection, and tail end sections of the ditch canal, respectively. Through this findings, the study recommended the implementation of rotational irrigation scheme to ensure the equal distribution of total water being delivered to all outlets. Also, proper scheduling based on the farm irrigation requirement of the crops

planted in the respective command areas need to implement to improve the efficiencies, increased the productivity and ensure economic viability in all canal sections.

Keywords: irrigation system; conveyance efficiency; field application efficiency

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