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P03 - A DIY Light Shielding Hood for Reducing Light Pollution and Improving Night Sky Visibility in Cebu, Philippines

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Artificial light at night increasingly obscures the stars, contributes to skyglow and glare, and diminishes opportunities for public engagement with the natural night sky. Although advanced lighting technologies can mitigate these effects, their cost often limits adoption in many local communities. This study evaluated a DIY Light Shielding Hood as an affordable intervention for improving outdoor lighting performance in urban and provincial settings in Cebu, Philippines. A mixed-methods experimental design was employed to compare lighting conditions before and after installation of the shielding hood. Measurements included upward light spill, ground illuminance, visible star counts, and observer-rated glare. Field testing was conducted under comparable nighttime conditions in locations representing contrasting ambient-light environments. The intervention produced substantial improvements across all indicators. Upward light spill decreased by approximately 99% in both settings, while ground-level illumination increased through the redirection of previously wasted light. Visible star counts increased by 110% in the provincial setting and 66.6% in the urban setting. Observer-reported glare was also markedly reduced, resulting in improved visual comfort. Statistical analyses confirmed that these changes were highly significant ($p < 0.001$). The results demonstrate that simple modifications to existing lighting systems can substantially improve the quality of the nocturnal environment without requiring costly infrastructure replacement. By redirecting light toward intended areas and limiting unnecessary skyward emission, the prototype offers a practical and scalable strategy for responsible outdoor lighting. The study highlights how accessible interventions can support dark-sky conservation, strengthen astronomy awareness, and encourage environmental stewardship in developing communities.

Keywords: light pollution, dark-sky conservation, skyglow, star visibility, responsible outdoor lighting, astronomy communication

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