ABSTRACT

TITLE:	Performance Analysis of Perforated Pipe Water Intake Structure
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ABSTRACT: Gravity-fed water systems are the most commonly used type around the world. Every one of these systems must have some kind of intake structure to capture the water. The Fort Lewis College chapter of Engineers Without Borders developed a perforated pipe stacked array inlet structure that specifically addresses problems prevalent in the monsoonal climate found in southeast Asia. A series of tests are conducted to analyze and quantify the performance of the intake structure. The tests explore the relationships between the volume flow rate, the diameter of the pipe, and the diameter and spacing of the perforations. The orifice equation is used along with laboratory data to calculate the discharge coefficient for different combinations of the parameters. The resulting discharge coefficients were all relatively similar ranging from 0.602 0.03 to 0.855 0.05. From this data a set of design curves are developed that can be used to assisted in the engineering design of the stacked array water intake structure.