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Information Science Competition (InDeLib2022)

Organized by

Faculty of Information Management
UiTM Kedah Branch



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TEKNOLOGI
MARA

Editors

Asmadi Mohammed Ghazali
Abd Latif Abdul Rahman



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BAMBOO RAINDROP DRAINAGE SYSTEM

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Abstract

Corrugated pipes are commonly used today, but clay and concrete are also used. Using drainage pipes constructed of various materials is common in the current market. This substance is prohibitively expensive, scarce, maintenance-intensive, and contaminates the water supplied by the plumbing element. In light of this scarcity, low-cost bamboo pipes are used as substitutes. In several regions of the world, bamboo is a renewable natural resource. Drainage is the natural elimination of a rainwater catchment's excess water to make it more acceptable for human usage. This study used bamboo with a predefined length and diameter as a rainwater drainage material in everyday activities, such as in the library and cleaning. The drainage system's role is to collect surface water or groundwater and direct it away, ensuring that the ballast bed is adequately drained. If appropriate conditions exist, the joint variability will be significant if the water table position is high, the rainfall has been hefty, and the site is sufficiently wet. Overall, bamboo as a material for rainwater drainage was determined to be successful. It can be used adequately as a substitute for various materials widespread on our market, providing cost savings, easy handling, and easy installation. In addition, unlike most other materials, bamboo pipes do not taint drinking water or react with the soil. This reduces the cost of purifying tap water for human use in specific industries. The new invention of the Bamboo Raindrop Drainage System would benefit communities and industries. It also aligned with the sustainable development goals initiated by the United Nations.

Keywords:

Innovation; Bamboo Raindrop Drainage System; Rainwater; Library; Sustainable Development.

Product Description

This novel product concept introduces the Bamboo Raindrop Drainage System, a natural solution distinct from current market offerings. This item has been modified to be more user-friendly. The newly designed product demonstrated its cost-effectiveness and environmental friendliness by utilising simple materials. This product is related to SDG 3, which is about good health and well-being; SDG 9, which is about industrial innovation and infrastructure; SDG 11, which is about decent work and economic growth; and SDG 12, which is about sustainable cities and communities (United Nations, 2015).

Novelty and Uniqueness

The Bamboo Raindrop Drainage System is a new invention introduced to the community and service-related industries like libraries, houses, manufacturing plants, agriculture plantations and even for sustainable decoration in towns and cities. Bamboo with a rainwater drainage system represents a novel approach to water conservation compliance. The product is essential for recycling water for human consumption and contributes to a better sustainable environmental strategy for the future.

Due to its unique properties, the Bamboo Raindrop Drainage System is unlike any other water drainage system in Malaysia. In less than 20 seconds, adding rain transforms ordinary tap water into a potent cleaning solution. This item serves as both a cleaning agent and a drinkable water source. The hydrologic cycle, consisting of evaporation, condensation, and final precipitation of mineral- and microorganism-free water, serves as a natural distillation process for pure precipitation. Carbon is one

of the most prevalent filtration material components to transform rainwater into potable water. This product could be used for sustainable building decoration in libraries, households, townships, and cities, among other places.

Benefit to Mankind

The objective of the Bamboo Raindrop Drainage System is to introduce the public to a water system that is helpful to the environment. In today's digital era, providing environmentally sustainable cleaning products for libraries and drinking water sources for patrons and local and international tourists at tourist spots is essential. Utilizing natural resources for daily needs has a beneficial effect on human life. The bamboo water source is extremely high quality and can ensure the health of others because the product prioritizes cleanliness. In addition, the design of this product allows all users,



notably students and individuals, to enjoy plain drinking water for free, decreasing their expenses. Using clean water and sanitation (Sustainable Development Goal 9) has helped us ensure that everyone has access to water and sanitation and that it can be sustained. The innovation of new products in the market would support the National Transformation 2050 (TN50) goals, which aims to place Malaysia among the top 20 nations in the world by 2050 in terms of economy, well-being, and innovation depending on the activities of Malaysians (Wee et al., 2019).

Potential Commercialization

Bamboo is the strongest and fastest-growing perennial grass on the planet. New technical breakthroughs offer previously unimaginable opportunities for regional industrial and commercial activities without harming the environment. This bamboo raindrop drainage system is eco-friendly and can be manufactured into long-lasting, beautiful items for tourist destinations, towns, and cities. Utilizing this product, municipal councils might transform their towns and cities into green ventures that benefit their citizens. Utilizing rainwater for agricultural purposes may be advantageous for agribusiness farms and plantations.

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