



An Overview of Rainwater Harvesting for Sustainable Future in Malaysia

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Abstract

This paper looks into the types of Rainwater Harvesting System (RWH), system, benefits, water governance and community awareness and level of acceptance of RWH implementation for future sustainability. RWH is not new in Malaysia, successful studies and existing projects can be as indicators for Malaysia to move further. This paper will discuss the benefits of RWH, types of system, water governance and level of public acceptance. A case study of RWH project in Sarawak will be discussed too as part of author contribution in these fields of research.

Keywords: Rainwater harvesting system, sustainable future, case study, knowledge transfer

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1.0 Introduction

Malaysia is blessed with high annual rainfall with an average of 250 centimetres (98 in) a year, and the average temperature is 27 °C (80.6 °F). These have led to frequent rain and increased water capacity at rivers and dams around the country. The collected water was a beneficial source for domestic and industrial users all over the country. A systematic treated water process is used for residential such as toilet flushing, washing clothes or vehicles and garden watering. In an industrial and commercial area, the water is the primary source for construction works, food process and productions, manufactures and agriculture. However, according to Md Lani et al., (2018), increasing water had made existing water supply infrastructure strained and some is getting polluted due to the urbanization process nowadays. Despite the abundant rain, drought season that recently faced by the country has disrupted and shortage of domestic water supply too. These phenomena also caused by scorching climate and global climate change issues. The future rainfall in several states in Malaysia is predicted to decrease due to climate change (Law and Bustami, 2013). In Malaysia, the spatial analysis study showed that most of the areas are more prone to a short term of drought and higher severity, especially at the north part of the Central Region and Southern Region and central part of the East Coast (Fung et al., 2020).

Based on the above unpredictable microclimatic scenarios, there is a severe need for Malaysians have proper water storage such as Rainwater Harvesting (RWH) for their primary usage. RWH can be defined as a direct collection of rainwater from roofs and other purpose-built catchments for domestic, industrial and agriculture use. It is a system to recycle and reuse the runoff to meet demand using storage volume, roof area, irrigated area and indoor non-potable as inputs. Research has shown that by continuously reuse the rainwater, environment and ecosystem could be sustained (Belmeziti et al., 2014; Lee et al., 2016) and their previous research is aligned with today's Sustainable Development Goal (SDG 6). SDG 6 has addressed the importance to conserve and sustainably managed the water resources.

Furthermore, United Nation Human Development (2020) has declared that water is at the core of sustainable and is critical for the socio-economic, ecosystem, the survival of the nation, thus making it beneficial for the human civilization. In Malaysia, RWH has high

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