



Living Walls in The City: Community Values and Expectations

R. A. Bustami^{1,2*}, R. Rawlings², S. Beecham³, J. Ward³, D. Y. S. Mah^{1,2}

¹Department of Civil Engineering, Faculty of Engineering,
Universiti Malaysia Sarawak, 94300 Kota Samarahan, MALAYSIA

²UNIMAS Water Centre (UWC), Faculty of Engineering,
Universiti Malaysia Sarawak, 94300 Kota Samarahan, MALAYSIA

³School of Natural and Built Environment,
University of South Australia, Mawson Lakes, 5095, AUSTRALIA

*Corresponding Author

DOI: <https://doi.org/10.30880/ijie.2023.15.09.009>

Received 8 May 2023; Accepted 1 September 2023; Available online 28 November 2023

Abstract: There is an increasing interest in living walls in the urban environment, particularly when linked into green infrastructure for urban heat island mitigation. However, the social acceptance of such systems in Australia is largely untested. To address this knowledge gap, a survey of nineteen local government authorities and twenty living wall owners and managers was conducted. The survey participants included commercial and residential buildings. The survey was used to study living wall owners' motivations and expectations of living walls as well as the social values attached to the installed infrastructure. This study related the experiences of living wall owners to the current technical knowledge of living walls and contextualised the benefits and costs of living walls for Australian homes and buildings within the public attitudes and motivations for installing such infrastructure. The survey found that social acceptance and the aesthetic values placed on living walls and greenery more broadly represented a substantial advantage for living walls.

Keywords: Green infrastructure, living wall, urban heat island

1. Introduction

A vertical greenery system (VGS) is a type of green infrastructure (GI) used in mitigating the urban heat island (UHI) effect [1], [2]. Plants on VGSs are capable of releasing latent heat during the evapotranspiration (ET) process [3]-[6]. There are two popular types of VGSs; one is green façades (GFs), the other being living walls (LWs). Living walls (LWs) offer flexibility and attractive designs but are more complicated and costly in terms of both set-up and maintenance. The primary benefits espoused of GFs and LWs are thermally related. VGSs have been shown to lower the façade's temperature in summer while acting as an insulator in winter [7]-[9]. As a passive building structure, VGSs have been shown to be capable of reducing a building's energy consumption [10]-[12]. Previous studies into VGSs have investigated their thermal efficiency, design, vegetation, phytoremediation capability and economics value. Of late, research studies into VGSs have diversified into multidisciplinary areas including acoustics and social studies [13]. Bustami et al. [13] also found that from the 166 outdoor VGS articles reviewed, only six (4%) were on social studies. However, these six social studies into VGS all reported positive psychological benefits for users. Moreover, discriminating factors such as maintenance and high costs continue to be a challenge for professionals dealing with VGSs.