A qualitative exploration on the awareness and knowledge of stakeholders towards Urban Heat Island phenomenon in Greater Kuala Lumpur: Critical insights for urban policy implications

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A B S T R A C T

Despite its notable role in the exacerbation of urban climate, Urban Heat Island (UHI) was poorly addressed, communicated and integrated into local urban policies of many developing countries. Such scenario often queried the level of UHI understanding amongst the key players who were involved in urban policy formulation. Hence, a qualitative study using Focus Group Discussions (FGD) was designed to investigate the awareness and knowledge level of stakeholders such as policy makers and practitioners in Greater Kuala Lumpur (GKL), an expanding socio-economic hub of a developing tropical country. The findings demonstrated a variable lack of awareness and knowledge about the concept of UHI, its status in GKL as well as organizational engagement in adaptation and mitigation initiatives among the study participants. Essentially, policy makers illustrated a facile awareness and knowledge towards UHI issues whereas practitioners displayed a more robust portfolio of factual understanding regarding the corresponding issues. In line with National Urbanization Policy's (NUP) aspiration to optimize urban developments that provide high quality of life, this study sheds some light on the exigency for UHI awareness creation and capacity building among the policy makers. This study also provides impactful prepositions for the articulation of necessary actions towards evidence-based urban policy formulation in future.

1. Introduction

Starting from the onset of the Anthropocene, environmentalists have demonstrated that manmade modifications to the earth's surface induced inadvertent impacts on regional climate (Bhatti & Mohan, 2016; Steffen, Broadgate, Deutsch, Gaffney, & Ludwig, 2015). In particular, many burgeoning urban areas have long been observed to record positive air temperature anomalies in contrast to their rural fringes, which is later described as Urban Heat Islands (UHIs) (Pórolniczak, Kolendowicz, Majkowska, & Czernecki, 2017; Wong & Lau, 2013). The driving mechanism of UHI is deemed to be biophysical in nature due to urban-rural pair differences that influence sensible heat dissipation and convection efficiency, sunlight reflection, artificial heating and evaporative cooling (Cao et al., 2016). This phenomenon is now prevalent in many developing cities that function as the main intellectual and economic capitals. It is often catalysed by escalating development activities that progressively replaced natural surfaces with materials of high thermal properties (Santamouris, 2015). Accordingly, impermeable surfaces with low albedo and high admittance, decreased evaporation, and shade due to reduced vegetation cover, large urban canyons that modify wind flows, heavy traffic activities, heating, ventilation and air-conditioning (HVAC) system as well as anthropogenic