UNIVERSITI TEKNOLOGI MARA

ASSESSMENT OF TEMPERATURE AND HUMIDITY OF URBAN BUILDING USING HIGH-SPATIAL RESOLUTION IMAGE WORLD VIEW 3

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ABSTRACT

The urban area, which consist a variety of building material has an immediate effect on the microclimate and on human comfort, which in turn has an effect on the global climate and heat island phenomenon. The extensive use of concrete and other several types of building material such as wooden and steel in urban area contributes to the heat island phenomenon, which indeed has a negative impact on thermal comfort. Besides, the global climate change is being amplified by an increase in humidity and temperature in urban area. Therefore, this research aims to assess the relationship between temperature and humidity of urban building materials with environmental in Sri Petaling, Selangor using high-spatial resolution image, Worldview 3. The discrimination of urban building among landuse lancover (LULC) utilized Support Vector Machine (SVM) classifier via object-based image analysis (OBIA) method. There are three (3) objectives have been determined; i) to classify the building materials, and. ii) to identify the temperature and humidity of different building materials, and. iii) to assess the relationship between temperature and humidity of urban building materials with surrounding environment. The expected outcome of this study is a map of different urban building materials and the impact of surrounding environment towards temperature and humidity of building materials. Consequently, this study will assist in reducing the effect of urban heat island (UHI) and benefited to Ministry of Health and municipal council in urban planning management especially in evaluating the climate effects of building materials towards surrounding environment.

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CHAPTER ONE
INTRODUCTION

1.1 Introduction

This chapter obtain the research background, problem statement, significance of the study, aim, and objectives, research questions, scope and limitations of the study for this research work.

1.2 Background of Study

High relative humidity and temperature can exacerbate mould growth and other microbial proliferation in the home, resulting in poor indoor air quality. Building spaces have experienced relative humidity levels over 70% for multiple cooling seasons, resulting in visible mould growth and musty odours. Mould was most commonly seen in corners, behind furniture, and behind items mounted on walls, where there was little air movement. Mould spores and cellular debris are regularly found in the air in these places when it is analysed. People who dwell in these areas are more likely to suffer from allergic reactions. Dehumidification is necessary to control indoor humidity and mould growth in hot, humid settings, especially in urban areas. An urban ecosystem's ability to cleanse the air is a major factor in determining the volume of emissions that are sent into the environment. Consequently, urbanisation has an effect on city air quality. One of the most important factors affecting urban air quality is pollution that originates outside of the United States. Moisture has a direct effect on the exterior of the building. Regardless of how small the opening may appear, water and air can get in, allowing mould to grow and wood rot to set in over time. Because many construction components, such as wood, insulation, and drywall, are breathable, some moisture is unavoidable. Depending on the humidity, wood in particular has a strong affinity for moisture and can easily release or absorb it. If there is too much moisture in the enclosure, the materials may deteriorate. Deterioration of the thermal resistance of attic and wall insulation is a possibility. Insulation, wood, and drywall can be damaged by mould, which weakens their structural integrity. It is more difficult to keep your home comfortable if there is