

# Abstract

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## **IMPACT OF URBAN ENVIRONMENT ON PLANTS - “GIS as an Assessment Tool for Preserving Plant Material”**

Plants have been an integral part of the city environment for many centuries. Over the past decades, cities have been experiencing a rapid deterioration in the levels of green areas. There are major factors which progressively alter the plant material causing this deterioration such as: climatic change, soil conditions, water stress, and pollution. Unfortunately, the loss of green areas has a direct impact on the city environment, human health, and quality of life. The green areas act as the city's lungs, they soften, beautify the cityscape, and improve neighborhood safety and livability. They play an important role in the complex urban built environment and provide vital and quantifiable ecosystem services such as air purification and temperature mitigation. The aim of the research is to develop an assessment tool for evaluating plant material, as an indicator for preserving plants from deterioration. This was achieved firstly by observing the different factors influencing plants secondly, thorough analysis of the plant attributes. Moreover, a comprehensive literature reviewing of different assessment methods was carried out and a single tool was Selected for application. Finally, the preliminary data gathered from site survey was fed into the geographic information system (GIS), which the software used for analysis and database documentation. The research entailed a detailed survey for the southwest part of the Shallalat Park, a total of 100 plants were assessed. The assessment was done using SULE method and GIS software for analyzing the data collected. The assessment also included a soil and pollution test for the Shallalat Park. It was concluded from the assessment at the study area that 65% of the plants were found to be over mature. Seventy percent of the plant health were found to be falling between the category of dying and at risk. The general retention value at the park were evaluated to be medium, due to various factors such as: aging population, poor condition, trunk and limbs infection, and harsh urban surroundings. This situation caused a high risk level of major structure failure. Finally, recommendations were compiled for future planning through engaging different parties and enhancing public awareness.