

**Pemanfaatan Citra Quickbird untuk Kajian Hubungan Kesehatan
Lingkungan Permukiman dengan Penyakit Chikungunya dan Demam
Berdarah Dengue di Kecamatan Umbulharjo, Yogyakarta**

Intisari

Informasi tentang kesehatan lingkungan dan kejadian penyakit penting diperlukan sebagai usaha pencegahan penyakit dan peningkatan kesehatan masyarakat. Penelitian ini bertujuan untuk mengkaji kemampuan citra Quickbird untuk menyadap data parameter kesehatan lingkungan permukiman, mengetahui kondisi kesehatan lingkungan di Kecamatan Umbulharjo, mengetahui pola sebaran kejadian penyakit demam berdarah dengue dan chikungunya, serta mengetahui hubungan antara parameter kesehatan lingkungan permukiman dengan kejadian penyakit dan angka bebas jentik.

Citra Quickbird tahun 2010 digunakan untuk menyadap data kepadatan permukiman, kerapatan pohon pelindung, dan kondisi halaman, ditambah dengan data parameter pengelolaan air limbah, pembuangan sampah serta kondisi saluran air hujan yang diperoleh dari pengecekan lapangan. Perhitungan nilai akurasi interpretasi citra Quickbird dilakukan dengan membandingkan hasil interpretasi dengan kondisi di lapangan. Peta kelas kesehatan lingkungan permukiman didapatkan dari hasil pengkelasan seluruh parameter penentu baik yang didapatkan dari interpretasi citra maupun kegiatan lapangan. Data kejadian penyakit dan angka bebas jentik diperoleh dari Puskesmas Umbulharjo I dan II yang kemudian dilakukan *plotting* di lapangan. Penentuan pola sebaran dilakukan dengan perhitungan nilai indeks titik kejadian penyakit pada metode *Average Nearest Neighbour*, sedangkan perhitungan korelasi antara kondisi kesehatan lingkungan permukiman dengan angka bebas jentik menggunakan metode *rank Spearman*.

Hasil penelitian menunjukkan bahwa citra Quickbird memiliki tingkat ketelitian interpretasi sebesar 86.67%, dimana secara umum kondisi blok permukiman di Kecamatan Umbulharjo termasuk sedang (56.88%). Selanjutnya, pola sebaran baik untuk penyakit demam berdarah dengue maupun chikungunya termasuk mengelompok dan banyak terjadi di permukiman kelas sedang. Terdapat korelasi yang cukup kuat antara kondisi kesehatan lingkungan permukiman dengan keberadaan jentik, dimana kepadatan permukiman, kondisi halaman, serta pengelolaan air limbah merupakan parameter yang berpengaruh besar.

Kata kunci: *Quickbird, kesehatan lingkungan, Demam Berdarah Dengue, Chikungunya*

The Application of Quickbird Imagery for Analysing the Correlation between Environmental Health and the Incident of Chikungunya and Dengue Hemorrhagic Fever in Umbulharjo Subdistrict, Yogyakarta

Abstract

The increasing number of people and the need of settlement can cause the environment and health problem if it is not accompanied by the improvement of infrastructure. The information of environmental health and disease are required to prevent the disease and improve the public health. The objectives of this study are to measure the accuracy level of Quickbird image, to know the environmental health condition of settlement in Umbulharjo subdistrict and the distribution pattern of dengue hemorrhagic fever and chikungunya incident, as well as to determine the relationship between environmental parameters with the disease incident and larva free index.

Using Quickbird imagery recorded in 2010, the data of settlement density, tree density, and yard condition could be assessed, while the data of wastewater management, disposal management, and rainwater channel condition were obtained from the field survey. In addition, data of disease incident and larva free index were gathered from the local health institutions (Puskemas Umbulharjo I and II) which then were plotted during the field survey. Map of environmental health condition was made by grading all settlement blocks based on the interpretation and field survey result. The determination of incident pattern distribution was performed by calculating index value of incident points on Average Nearest Neighbour method, while the correlation between health condition and larva free index used rank Spearman calculation.

Result showed that accuracy level of Quickbird interpretation was 86.67% with the class majority in moderate class (56.88%). Furthermore, the calculation indicated that the disease pattern of both, dengue hemorrhagic fever and chikungunya were clustered which mainly occurred in the moderate class. Finally, it also showed that there was quite strong correlation between environmental health condition and the larva free index, which the settlement density, yard condition, and wastewater management became the most influenced parameters.

Keywords: Quickbird, environmental health, Dengue Hemorrhagic Fever, Chikungunya