# REMOTE SENSING, GEOGRAPHIC INFORMATION SYSTEMS AND SHANNON'S ENTROPY: MEASURING URBAN SPRAWL IN A MOUNTAINOUS ENVIRONMENT

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**ABSTRACT:**

Urban sprawl, or the unplanned and uncontrolled spreading out of built-up areas, causes problems in the allocation of basic needs and increases risk to life and property in the face of disasters. The integration of remote sensing and geographic information systems is used in adopting Shannon's entropy to measure urban sprawl. Shannon's entropy is an index used here in quantifying the degree of dispersion or concentration of built-up areas. This study in the mountainous city of Baguio in northern Philippines shows that together with remote sensing, geographic information systems and photogrammetric techniques, built-up concentration can be identified and quantified from time series of aerial photographs and satellite images; this facility can assist in monitoring the growth of built-up areas and in drafting measures and policies to address urban sprawl's imminent effects.

**TOPIC:** Remote sensing applications
**ALTERNATIVE TOPIC:** Remote sensing applications