

Detecting and Analyzing Land Use/Cover Changes in a Hill Station: A case study in Baguio City, Philippines

Ronald C. Estoque and Yuji Murayama
 Division of Spatial Information Science, University of Tsukuba
 Contact address: <purplebee80@yahoo.co.uk>

- (1) Introduction:** Baguio city is one of the hill stations in Southeast Asia and the only one in the Philippines. It is the summer capital of the country, a major educational and tourist center, the seat of the regional government, and recently, an emerging industrial and health service north of Metro Manila. However, rapid urbanization and population growth are straining the city's resources. Such developments are beginning to toll on the people's wellbeing and on the environment.
- (2) Objective:** The primary aims of this study are to detect land use/cover changes and analyze urban growth in Baguio City, Philippines.
- (3) Data and Methods:** Multi-temporal satellite images for the years 1988, 1998, and 2009 were classified to develop the land use/cover maps of the study area. The classification process was aided with ground truth and other ancillary data gathered during the fieldwork. Post classification analysis was employed to detect the land use/cover changes.

- (4) Results:** A significant increase in urban/built-up area and a substantial decrease in area of the other land use/cover categories were noted. The results are presented in Figures 1, 2 and 3.
- (5) Conclusion:** This study examined the land use/cover changes and urban growth in Baguio city, Philippines. Results show a rapid land use/cover changes and urban growth. The rugged topography of the study area, being at the hill station, may have influenced the urban expansion in a fragmented manner. The uncontrolled population growth and urban expansion, which are the major root causes of major changes, are now exerting pressure on the city's amenities, resources and the environment. The city must rise to the challenge to address these issues in the name of modernization and sustainability, taking into consideration the city's potential and its significant roles in the country.

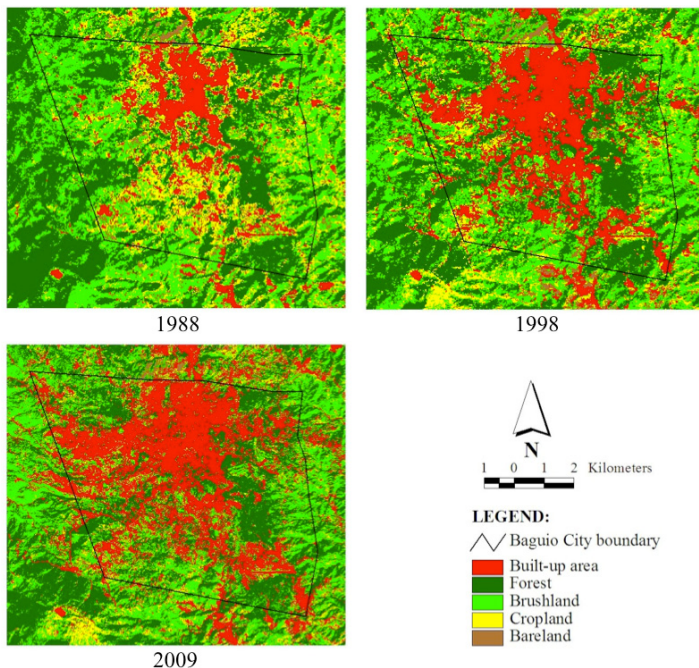


Fig. 1: Land use/cover maps of Baguio City

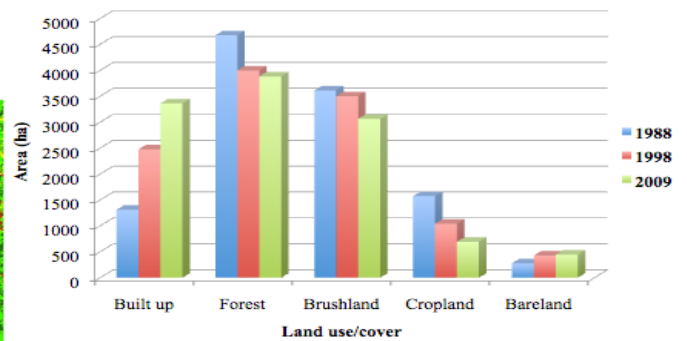


Fig. 2: Trends in land use/cover changes

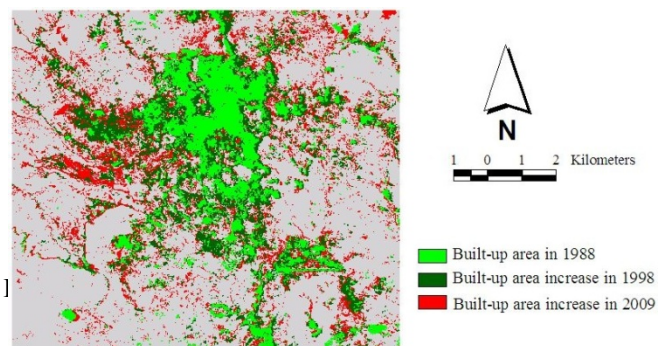


Fig. 3: Built-up area, 1988, 1998, and 2009