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Data Article

Data on spatiotemporal land use land cover changes in peri-urban Addis Ababa, Ethiopia: Empirical evidences from Koye-Feche and Qilinto peri-urban areas

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ABSTRACT

Urban expansion is one of the key problems in Ethiopia resulting in displacement of the rural people inhabiting areas bordering the cities/towns. It is also resulting in land use land cover (LULC) changes affecting the livelihoods of the people and the ecosystems [1,2]. The data presented in this article, therefore, shows the spatiotemporal LULC changes of peri-urban expansion areas known as Koye-Feche and Qilinto, around Addis Ababa City (the capital of Ethiopia). The data were generated from Landsat Thematic Mapper (TM) and Enhanced Thematic Mapper Plus (ETM+) images (with path/row numbers 168/054) by using ERDAS EMAGINE 2014 software. The precision of the images was verified by geolocation data collected from ground control points by using Geographic Positioning System (GPS) receiver. The data indicate that the built-up areas have increased by 1017.85 ha (10.178 km²) with 89.1%, 58.4%, 47% and 13% decline of plantation (mostly eucalyptus woodlots), grasslands, riverine vegetation (forestland) and cropland, respectively, between 1986 and 2016.

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Specifications Table

Subject area	Geography and Environmental Studies
More specific subject area	Land use land cover change, urban sprawl
Type of data	Table, figure and text file
How data was acquired	Data were extracted from Landsat TM and Landsat ETM ⁺ images with path/row numbers 168/054 and firsthand data were acquired by using GPS-based ground survey technique.
Data format	Analyzed
Experimental factors	
Experimental features	The images were geo-referenced with World Geodetic System (WGS) 1984 datum and Universal Transverse Mercator (UTM) projection system zone 37 North. The images were classified based on visual interpretation and supervised classification using ERDAS EMAGINE 2014 software.
Data source location	Landsat and Koye-Feche and Qilinto areas (8°52′–8°56′N, 38°48′–38°52′E)
Data accessibility	The data is with this article

Value of the data

- The data is helpful to Addis Ababa City administrators to speculate the extent of the spatiotemporal expansion of Addis Ababa and its potential impacts on the surrounding areas.
- The data provides information on the status of urban expansion towards rural peri-urban areas around Addis Ababa.
- The data is vital to model urban expansion towards rural peri-urban areas surrounding Addis Ababa to mitigate its adverse impacts on the livelihoods of the people inhabiting the area and the ecosystem.
- The data is useful to researchers, urban planners and experts working in the field.

1. Data

The data in this article provides information on the spatiotemporal LULC changes in Koye-Feche and Qilinto urban expansion areas around Addis Ababa City between 1986 and 2016. [Figs. 1–3](#) illustrate pictorially the spatiotemporal LULC classes of the area in 1986, 2000 and 2016. Cropland and grassland had dominated the land use in 1986 ([Fig. 1](#)) with very few built up areas, plantation and forestland. In 2000 ([Fig. 2](#)), plantation was tremendously expanded and cropland was considerably reduced. In 2016 ([Fig. 3](#)), built up area was extremely enlarged, cropland was almost disappeared and some part of the cropland was replaced by built up areas. [Table 1](#) demonstrates LULC extent in hectare and percentage in 1986, 2000 and 2016 as well as rate of LULC changes in hectare (ha) and percentage (%). [Tables 2–4](#) demonstrate LULC change matrix between 1986 and 2000, 2000 and 2016, and 1986 and 2016. [Table 5](#) illustrates rate of LULC change in hectare per year.

2. Experimental design, materials and methods

Landsat Thematic Mapper (TM) and Enhanced Thematic Mapper Plus (ETM⁺) images (with path/row numbers 168/054) as well as GPS-based ground survey records were vital data sources for this data article. The analyses, such as data extraction and LULC classification, were done by using ERDAS IMAGINE Version 2014 software. The images were geo-referenced with World Geodetic System

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