

Catalogue of fundamental geo-spatial datasets for Africa: Country report for Ethiopia



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1. Background

A continental-wide study was conducted in 2006 to catalogue the existence of fundamental geo-spatial datasets in Africa. This study was contracted to a consortium consisting of the HSRC and EIS-AFRICA as lead organisations and numerous sub-regional partners. It was conducted under the auspices of the UNECA.

The study used a questionnaire to obtain information about the 30 fundamental geo-spatial datasets. This report reflects the findings collected from that questionnaire for Ethiopia.

2. Data availability

Table 1: Availability of fundamental geo-spatial datasets

Dataset	Have it?	Source
Geodetic control points	Yes	Ethiopian Mapping Agency
Height datum	Yes	Ethiopian Mapping Agency
Geoid model	Yes	Ethiopian Mapping Agency
Aerial photography	Yes	Ethiopian Mapping Agency
Satellite imagery	Yes	Ethiopian Mapping Agency/ Map Maker Trust/ UNECA
DEM	Yes	Ethiopian Mapping Agency/ UNECA
Spot heights	Yes	Ethiopian Mapping Agency
Bathymetry	Yes	Ministry of Water Resources/ GEBCO
Coastline	Yes	Ministry of Water Resources
Water bodies	Yes	Ministry of Water Resources/ Map Maker Trust/ UNECA
Government boundaries	Yes	Ethiopian Mapping Agency/ Central Statistical Agency
Populated places	Yes	Ethiopian Mapping Agency/ Central Statistical Agency/ UNECA
EA	Yes	Ethiopian Mapping Agency/ Central Statistical Agency
Place names	Yes	Ethiopian Mapping Agency/ Map Maker Trust/ UNECA
Feature names	Yes	Ethiopian Mapping Agency/ UNECA
Land parcels	Yes	Ethiopian Mapping Agency/ Federal Urban Planning Institute
Land tenure	Yes	Federal Urban Planning Institute
Street address	No	
Postal code zones	Yes	Ethiopian Mapping Agency

Dataset	Have it?	Source
Land use planning zones	Yes	Ethiopian Mapping Agency/ Ministry of Agriculture and Rural Development/ Federal Urban Planning Institute
Roads	Yes	Ethiopian Mapping Agency/ Map Maker Trust/ UNECA
Road centrelines	Yes	Ethiopian Mapping Agency
Railways	Yes	Ethiopian Mapping Agency/ Map Maker Trust/ UNECA
Airports	Yes	Ethiopian Mapping Agency / UNECA
Bridges	Yes	Ethiopian Mapping Agency
Power	Yes	Ethiopian Mapping Agency
Telecommunication	Yes	Ethiopian Mapping Agency
Land cover	Yes	Ethiopian Mapping Agency/ Ministry of Agriculture and Rural Development
Soils	Yes	Ethiopian Mapping Agency/ Ministry of Agriculture and Rural Development
Geology	Yes	Ethiopian Mapping Agency/ Geological Survey of Ethiopia

Ethiopia has access to 29 of the 30 fundamental geo-spatial datasets and the country therefore has very good access to the fundamental datasets. The only lacking dataset was street addresses. The quality of these datasets was defined by their characteristics which are discussed in the next section.

2.1 Data characteristics

Data characteristics were complete for most of the records and provide a good description of the fundamental geo-spatial datasets. The quality of the existing geo-spatial datasets indicates that some of the datasets might not be immediately useful for filling geo-information gaps. The table indicates for example: height datum data is available at a scale of less than 12-50m or 125-250m (depending on which organisation holds the data) and it is available in a report, table, map, spreadsheet, database, GIS or other digital format. Empty cells in the table indicate that no response was received.

Table 2: Dataset characteristics

Dataset	Scale at which available (000/ resolution m)	Completeness (%)	Format	Accessibility
Geodetic control points	12-50/ 62.5-100/ 125-250/ 500-1000		Report/ Table/ Map/ Spreadsheet/ Dbase/ GIS/ Other ¹	Authorisation/ Scale ² / Payment

¹ Other digital format

² Scale-dependent

Dataset	Scale at which available (000/ resolution m)	Completeness (%)	Format	Accessibility
Height datum	12-50/ 125-250		Report/ Table/ Map/ Spreadsheet/ Dbase/ GIS/ Other	Authorisation/ Scale/ Payment
Geoid model			Report/ Table/ Map/ Spreadsheet/ Dbase/ GIS/ Other	Authorisation/ Scale/ Payment
Aerial photography	>10/ 20-50		Report/ Map	Authorisation/ Payment
Satellite imagery	5-20/ 20-80/ >1000	/100/ 100	Map/ GIS/ Other	Unrestricted/ Authorisation/ Free/ Payment
DEM	5-50/ 50-125/ 125-1000	/ 100/	GIS/ Other	Unrestricted/ Authorisation/ Scale/ Free/ Payment
Spot heights	12-50		Report/ Table/ Spreadsheet	Authorisation/ Scale
Bathymetry	All scales	100	Report/ Map/ Dbase/ GIS/ Other	Unrestricted/ Authorisation/ Scale/ Payment
Coastline			Report/ Table/ Map/ Dbase/ GIS	Unrestricted/ Authorisation/ Scale/ Free/ Payment
Water bodies	All scales	<25/ 76-99/ 100/ 100/ 100	Report/ Table/ Map/ Dbase/ GIS	Unrestricted/ Authorisation/ Scale/ Free/ Payment
Government boundaries	500-1000	100	Report/ Table/ Map/ Dbase/ GIS	Unrestricted/ Authorisation/ Scale/ Free/ Payment
Populated places	12-50/ 125-250	76-99	Report/ Table/ Map/ Spreadsheet/ GIS/ Other	Unrestricted/ Authorisation/ Scale/ Free/ Payment
EA	10	76-99	Report/ Table/ Map/ Spreadsheet/ Other	Unrestricted/ Authorisation/ Free/ Payment
Place names	12-50/ 125-250/ 500-1000	100/ 100 /	Report/ Table/ Map/ Dbase/ GIS	Unrestricted/ Authorisation/ Free/ Payment
Feature names	>10/ 12-50/ 125-250/ 500-1000	100/ 76-99/ 76-99/ 100	Report/ Table/ Map/ Spreadsheet/ Dbase/ GIS	Unrestricted/ Authorisation/ Free
Land parcels	>10	<25	Report/ Table/ Map/ Dbase/ GIS	Authorisation/ Payment
Land tenure			Report/ Table/ Map/ Dbase	Authorisation/ Payment
Street address				
Postal code zones				
Land use planning zones	500-1000	100	Report/ Table/ Map/ Spreadsheet/ GIS	Authorisation
Roads	500-1000	100	Map/ GIS	Unrestricted/ Authorisation/ Scale/ Free/ Payment

Dataset	Scale at which available (000/ resolution m)	Completeness (%)	Format	Accessibility
Road centrelines			Map/ GIS	Authorisation/ Scale/ Payment
Railways	10-50/ 500-1000	100	Map/ GIS	Unrestricted/ Authorisation/ Scale/ Free/ Payment
Airports	10-50/ 500-1000	100	Map/ GIS	Unrestricted/ Authorisation/ Scale/ Free/ Payment
Bridges			GIS	
Power				
Telecommunication				
Land cover	125-250	100	Report/ Table/ Map/ Dbase/ GIS	Authorisation/ Payment
Soils	500-1000	100	Report/ Table/ Map/ Dbase/ GIS	Authorisation/ Payment
Geology	125-250/ 500-1000	100	Report/ Table/ Map/ Spreadsheet/ Dbase/ GIS	Authorisation/ Scale/ Payment

About twelve datasets are available at a detailed scale while water bodies and bathymetry is available at all scales. The data completeness is problematic since several datasets have data with an incomplete spatial coverage. This means the data does not cover the spatial jurisdiction on which respondents were reporting. Another concern is that many datasets are available in a map or non-GIS format – for example aerial photography is only available as a report or map and EA data is not in GIS at all. This indicates that such data requires some reworking before it can be used to try and complete the geo-spatial data gaps in Africa. A number of datasets have restricted and scale-dependent access.

3. Conclusion

Although Ethiopia has access to most of the fundamental geo-spatial datasets the quality of the data might be insufficient to serve as closing geo-spatial data gaps. The final decision on the quality of the existing data is complicated by the shortcomings of the data. Based on this it can be concluded that once the existing geo-spatial data have been re-worked it might be useful for filling the geo-spatial data gaps on the continent.