

# ETHIOPIA

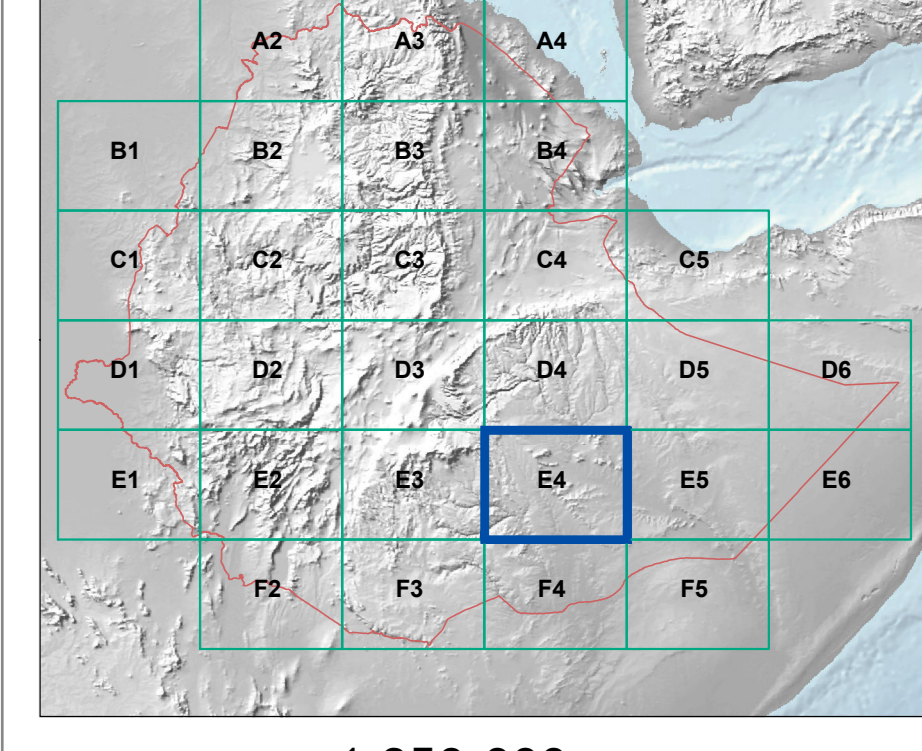
## Geographic Base Map

Tile E4 Reference Map Series 1:250,000

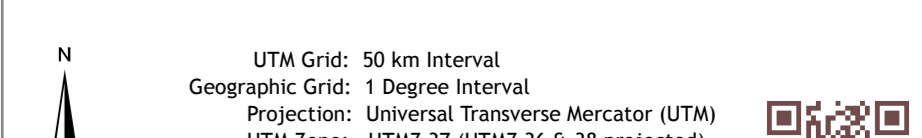
Map Sheet # 22 / E4 Somali/NW-Afer

### WLRC Land Cover Map 2016

Map Sheet Index - Scale 1:15,000,000



1:250,000



UTM Grid: 50 km interval  
 Geographic Grid: 1 Degree interval  
 Projection: Universal Transverse Mercator (UTM)  
 UTM Zone: 37 (UTM 36, 38 projected)  
 Meridian of Origin: Equator  
 Horizontal Datum: WGS84  
 Vertical Datum: Mean Sea Level  
 Spheroid: WGS84



- #### Legend
- |                               |                                |
|-------------------------------|--------------------------------|
| <b>Administration</b>         | <b>Transport</b>               |
| National boundary             | Railway                        |
| International boundary        | Transnational road             |
| Farmland                      | Primary road                   |
| Forest                        | Secondary road                 |
| National Park                 | Tertiary road                  |
|                               | Track                          |
|                               | Path                           |
| <b>Settlement</b>             | Residential road               |
| State capital                 | Railway under construction     |
| Region capital                |                                |
| Large settlement              | <b>Drainage</b>                |
| Medium settlement             | Temporary inlet (cat. 2)       |
| Small settlement              | Occasional river (cat. 3)      |
| Not classified                | Seasonal river (cat. 4)        |
|                               | Perennial river (cat. 5)       |
|                               | Main river (cat. 6)            |
|                               | Stream (cat. 7)                |
|                               | Large stream (cat. 8)          |
| <b>Infrastructure</b>         |                                |
| Motor station                 |                                |
| Georging station              |                                |
| Health post                   |                                |
| Dam                           |                                |
| <b>Hydrology</b>              | <b>WLRC Land Cover Classes</b> |
| Marshland                     | Alfalfa                        |
| Barrenland                    | Barrenland                     |
| Cropland                      | Cropland                       |
| Forest                        | Forest                         |
| Grassland                     | Grassland                      |
| Settlements                   | Settlements                    |
| Shrubland                     | Shrubland                      |
| Water body                    | Water body                     |
| Wetland                       | Wetland                        |
| Woodland                      | Woodland                       |
| <b>Topography</b>             |                                |
| Mountain peak                 |                                |
| Contour lines (500m interval) |                                |
| <b>Surface Water</b>          |                                |
| Lake                          |                                |
| Episodic lake                 |                                |

**How to read the "WLRC Land Cover Map 1:250,000"**  
 The main methodological approach implemented to map the complex landscape of Ethiopia at the required scales for the MagServer series was the majority and minority concept of landscape segmentation. Central to this HCC based mapping methodology (HCC stands for Homogeneity Classification Units). The employment of such an "exclusion-based" approach (e.g. sub-setting of the Land Cover classes and gradually reducing the resolution) was considered as a breakthrough in deriving important land cover information in heterogeneous landscapes, such as the complex highlands of Ethiopia. Nevertheless, the final land cover map was compiled using an approach that combined the automated HCC approach with expert knowledge and field observations. This approach made it possible to distinguish land cover classes that were considerably larger than that indicated by official statistics in use since the mid 1980s when the rural population was half its current size. The team also mapped large-scale land use systems, including of any foreign origin. Results of the study show there has been a considerable expansion and intensification of farming in the past three decades, unfortunately leading to a net loss of forest.

**References:** Tebeu Kassamame, Gerda Eckert, Keizer Hami, Gete Zinab & Hans Humi (2016): Reducing landscape heterogeneity for improved land use and land cover (LULC) classification across the large and complex Ethiopian highlands, *Geocarto International*, DOI: 10.1080/10106049.2016.1222837

**Geospatial Information**  
 National spatial data infrastructure (NSDI) plays a significant role in the development of Ethiopia's rural economic growth. It contributes to the sustainable use of natural resources, infrastructure planning, and efficient management of food crops. Maps are means of visual communication and information management of complex problems. They are containers of data, show spatial patterns, enable geographic analysis, and can be used to "take a virtual trip" through the landscape. It is common knowledge that people retain 80% of what they see, 20% of what they read, and 10% of what they hear. Maps and visual aids are widely used in education, training, field work, and contain what visual aids. Yet most visual aids on the internet. This makes maps an ideal means of development communication and serves regional development.

**The MagServer Ethiopia project**  
 MagServer Ethiopia is a web-based open source platform for the dissemination of geospatial data maps and information about Ethiopia. The website contains three main web services that enable: (1) mapping based on pre-produced maps, (2) online mapping of selected information layers, and (3) open geospatial data download. The MagServer Ethiopia data platform and website are intended to improve mapping and spatial understanding in the context of project management, natural resources governance, humanitarian aid work, and academic education.

**The MagServer Ethiopia project is part of the activities of the Water and Land Resource Centre (WLRC) to improve data sharing and dissemination in support of land and water resources management. The MagServer Ethiopia is funded by the Swiss Agency for Development and Cooperation (SDC).**

**The Water and Land Resources Centre**  
 The Water and Land Resource Centre (WLRC) in Addis Ababa, Ethiopia ([www.wlrc.ethiopia](http://www.wlrc.ethiopia)) was established by the Centre for Development and Environment, University of Bern, Switzerland ([www.cde.unibe.ch](http://www.cde.unibe.ch)) in 2011 as an institution associated to Addis Ababa University. Since its inception the centre systematically monitors, collects, integrates, and disseminates data and knowledge in support of sustainable management of natural resources. Today, the centre builds on long-standing achievements to reduce land degradation, improve livelihoods in rural areas and serves as regional knowledge hub and cross-scale Ethiopia land governance.

**Origin of map data**  
 Building on EthioGIS-3, the new (2018) release of the National Geospatial Database System for Ethiopia, the MagServer Ethiopia ([www.magserver.ethiopia](http://www.magserver.ethiopia)) site is providing a web-based gateway for open and non-authoritative geospatial information for the Federal Democratic Republic of Ethiopia. The mapping services are designed to improve decision support for development actors, government authorities, NGOs, international organizations, and the civil society.

MagServer Ethiopia is part of WLRC's, Water and Land Resource Information System (WRIS) and adds a portal for environmental and socio-economic data to support decision and serves applications for registered user through [www.wlrc.ethiopia](http://www.wlrc.ethiopia). Data of WLRC and geospatial data foundation for the main MagServer Ethiopia product lines are available on and other mapping services based on a wealth of free and open geospatial providers.

**Disclaimer**  
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**Reference**  
 Please note that you must indicate the source of geospatial data or map layers when using this information in other products. In other words: WLRC Ethiopia and CDE, University of Bern, Switzerland, MagServer Ethiopia, Thematic and Geographic Outputs, Field and Base Map Series [map] 1:100,000, 1:250,000, Release 3.0/December 2018. Internet: [www.magserver.ethiopia](http://www.magserver.ethiopia)

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