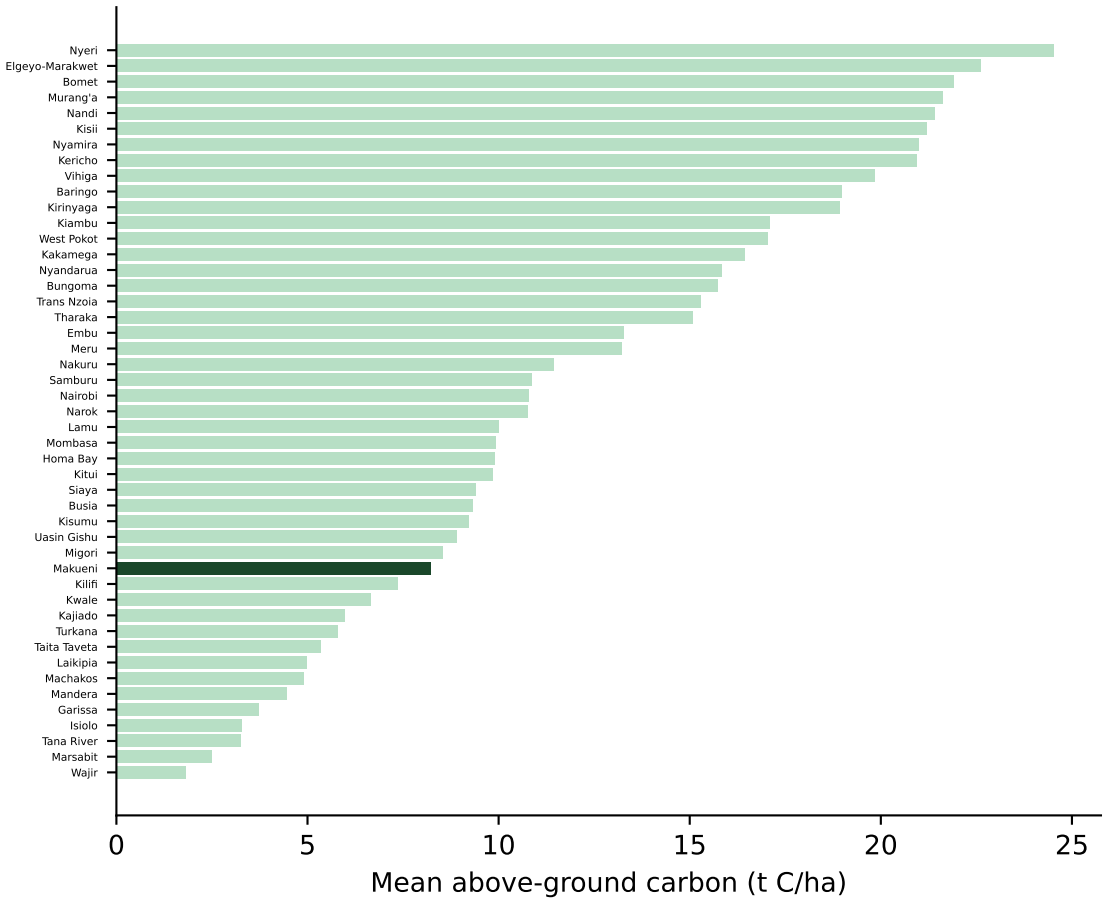
Makueni County

Carbon stock screening report for county climate planning

Carbon-Eye analysis 52a2006ae7c0, run on 2026-11-18

Figure	Value
Mean above-ground carbon	8.2 t C/ha
Total above-ground carbon	6.56 million t C
As CO2 equivalent (x 44/12) - a stock, not emissi	24.06 million t CO2e
Range across the county	0 - 63 t C/ha
Tree-cover loss recorded (Hansen, since 2001)	1.2% of the county
Rank by carbon density	34 of 47 counties in this analysis
Rank by total carbon	20 of 47
Share of the analysis's carbon	1.7%

Makueni among the counties in this analysis



Where these numbers fit in county planning

CIDP - environment and natural resources

A baseline indicator: above-ground carbon of 8.2 t C/ha on average (24.06 million t CO2e in total). Re-run the same analysis yearly to report the trend.

County Climate Change Action Plan

The mitigation baseline for land and forests, and where carbon is concentrated. Pair it with recorded tree-cover loss to show where it is under pressure.

FLLoCA investment proposals

Screening evidence for where restoration or protection would keep or add the most carbon. Proposals still need ward-level consultation and field checks.

Tree-growing and restoration targets

Compare low-carbon land against neighbouring forest to show how much carbon restoration could add; Carbon-Eye's restoration tool gives the estimate for a chosen site.

Forest protection and enforcement

1.2% of the county shows tree-cover loss since 2001; the Forest Change tab locates recent alerts for patrols and follow-up.

How the numbers were made

Three machine-learning models (Random Forest, Gradient Tree Boosting, Support Vector Machine) are trained in Google Earth Engine on the ESA CCI biomass 2020 reference map, using Sentinel-1 radar, Sentinel-2 optical imagery, terrain, climate and soil layers from 2024-11-01 to 2026-11-01. Their weighted average is the carbon map; carbon is above-ground biomass x 0.47 (IPCC default).

What it can't support

- These are screening estimates, not a forest inventory or verified carbon accounting; they cannot be sold as carbon credits.
- Above-ground carbon only: roots, dead wood and soil carbon are not in these totals.
- Dense forest is usually under-estimated and very sparse drylands are the least certain.
- Agreement is measured against a modelled reference map, not field plots; field plots (Carbon-Eye's plot planner gives the number and locations) are the next step before relying on a figure.