

Reproducibility instructions

Weather Shocks and Unintended Fertility in Sub-Saharan Africa

February 2026

1. Overview

This file describes the steps and data needed to produce the results reported in “Weather Shocks and Unintended Fertility in Sub-Saharan Africa”

The analysis was conducted using Stata 18 on a Windows PC. The codes for data cleaning and analysis take about one hour.

Additionally, ArcGIS pro 10 was used to extract geospatial characteristics

2. Statements about Rights

The authors certify that they have permission to use the datasets used in the manuscript.

3. Steps to produce the results

To produce the results reported in the manuscript, please follow the following steps:

- Run “dofile/Main.do “
- Run “replicate_mechanisms/dofile/Main_Mechanisms.do”

4. Folder structure

data

- created (author-generated data)
- DHS_SSA (raw data)

dofile

- DHS
- Spatial

replicate_mechanisms

- Data
 - **Special note:**
replicate_mechanisms\data\created\DHS_appended/woringdata.dta

(is manually copied and pasted from the folder
Replication_unintended\data\created\DHS_appended)

- replicate_mechanisms\data\spatial\RF_stata\DHS_RF_temp.dta is manually copied and pasted from the folder
Replication_unintended\DHS_Spatial_Data\Output\Final
- dofile
- results
 - **mechanism** produces Table 8: Drought Intensity and Sexual Behavior and Attitudes in the manuscript
 - **employed** produces Table 10: Association between unintended fertility and women's labor market outcomes in the manuscript

Results

- **Table_1.docx**: produce Table 1 in the manuscript
- **Table_2.rtf**: produce Table 2 in the manuscript
- **main_results and additional_controls** make Table 3: Impact of Drought Shocks on Intended Fertility in the manuscript
- **alternative_indicators produces** Table 4: Drought shocks and Intended Fertility using alternative percentiles in the manuscript
- **results_EA** produces Drought and Water Surplus Shocks on Intended Fertility - Clusters as Unit of Analysis in the manuscript
- **birthorder_first and above_median_birth_order** produce Table 6: Drought Shocks and Intended Fertility by Birth Order in the manuscript
- **basedonedu** produces Table 7: Drought Shocks and Intended Fertility by Maternal Education Level in the manuscript
- **childhealth_outcomes** produces Table 9: Association between Intended Fertility and Health and Maternal Care Indicators in the manuscript
- **placebo** produces Table A1: Placebo Regression in the Annex
- **recallyears** produces Table A2: Impact of Drought on Pregnancy Outcomes: Evaluating Recall Bias in the Annex

Figure 1: please see the separate README for geospatial datasets called
“README_GEOSPATIAL”

5. data availability and sources

The table below provides information on data sources and access requirements

1	2	3	4	5	6
Name of dataset	File Names	Link/Access Instructions	Access Date	Data accessibility	Remark
Demographic and health survey (DHS)	data/DHS_SSA/ AG/ - AOKR71DT BF/ - BFKR21DT - BFKR31DT - BFKR43DT - BFKR62DT - BFKR81DT BN/ - BJKR31DT - BJKR41DT - BJKR51DT - BJKR61DT - BJKR71DT CD/ - TDKR31DT - TDKR41DT - TDKR71DT CM/ - CMKR21DT - CMKR31DT - CMKR44DT	https://dhsprogram.com/data/dataset_admin/login_main.cfm;jsessionid=38AA921B4F92FB1E55E6E25BE78AAE49.cfusion?CFID=207585736&CF_TOKEN=72b4afa0fd47e4b1-42B4DA51-FB91-ADA0-1AD618FBF4871629	February 2023	The data is accessible by creating an account in the provided link and placing a request. This holds for both the geolocation data and the survey datasets. (when requesting, use the list of datasets provided under column 2 as filter)	We use data from 18 countries which means uneven rounds/waves of data from each country.

	- CMKR61DT - CMKR71DT CT/ - CIKR3ADT - CIKR35DT - CIKR62DT - CIKR81DT DRC/ - CDKR51DT - CDKR61DT ET/ - ETKR41DT - ETKR51DT - ETKR61DT - ETKR71DT - ETKR81DT GB/ - GAKR41DT - GAKR61DT - GAKR71DT GN/ - GNKR41DT - GNKR52DT - GNKR62DT - GNKR71DT KN/ - KEKR01DT - KEKR3ADT - KEKR8CDT - KEKR31DT - KEKR42DT				
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	- KEKR52DT - KEKR72DT ML/ - MLKR01DT - MLKR6ADT - MLKR7ADT - MLKR31DT - MLKR41DT - MLKR53DT MW/ - MWKR4EDT - MWKR7ADT - MWKR21DT - MWKR41DT - MWKR61DT NB/ - NMKR21DT - NMKR41DT - NMKR51DT - NMKR61DT NG/ - NGKR4BDT - NGKR6ADT - NGKR7BDT - NGKR21DT - NGKR53DT SG/ - SNKR01DT - SNKR4ADT - SNKR6DDT - SNKR7ADT				
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	- SNKR7IDT - SNKR7ZDT - SNKR8BDT - SNKR8RDT - SNKR21DT - SNKR32DT - SNKR61DT - SNKR71DT - SNKR81DT TG/ - TGKR01DT - TGKR31DT - TGKR61DT TZ/ - TZKR3ADT - TZKR4IDT - TZKR7BDT - TZKR21DT - TZKR41DT - TZKR63DT - TZKR82DT				
Country DHS location coordinates	data/DHS_SSA /GPS/ BFGE23FL BFGE32FL BFGE43FL BFGE61FL BFGE81FL	https://dhsprogram.com/data/dataset_admin/login_main.cfm;jsessionid=38AA921B4F92FB1E55E6E25BE78AAE49.cfusion?CFID=207585736&CF_TOKEN=72b4afa0fd47e4b1-42B4DA51-FB91-ADA0-1AD618FBF4871629	February 2023	Please follow the prompt to place another request for the GPS coordinates and download the files listen in column 2.	

	BJGE33FL BJGE42FL BJGE61FL BJGE71FL CDGE52FL CDGE61FL CIGE3BFL CIGE33FL CIGE61FL CIGE81FL CMGE23FL CMGE42FL CMGE61FL CMGE71FL ETGE42FL ETGE52FL ETGE61FL ETGE71FL ETGE81FL GNGE42FL GNGE52FL GNGE61FL GNGE71FL KEGE8AFL KEGE43FL KEGE52FL KEGE71FL MLGE6BFL MLGE7AFL MLGE33FL MLGE42FL				
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	MLGE52FL MWGE4BFL MWGE7AFL MWGE43FL MWGE62FL NGGE4BFL NGGE6AFL NGGE7BFL NGGE23FL NGGE52FL SNGE4BFL SNGE6AFL SNGE7AFL SNGE7IFL SNGE7RFL SNGE8BFL SNGE8RFL SNGE23FL SNGE32FL SNGE61FL SNGE71FL SNGE81FL TDGE71FL TGGE03FL TGGE32FL TGGE62FL TZGE7AFL TZGE43FL TZGE61FL TZGE81FL				
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Raw data needed for the mechanism analyses	TDIR31DT TDIR41DT TDIR71DT TGIR01DT TGIR31DT TGIR61DT TZIR3ADT TZIR4IDT TZIR7BDT TZIR21DT TZIR41DT TZIR63DT TZIR82DT AOIR71DT BFIR21DT BFIR31DT BFIR43DT BFIR62DT BFIR81DT BJIR31DT BJIR41DT BJIR51DT BJIR61DT BJIR71DT CDIR51DT CDIR61DT CIIR3ADT CIIR35DT CIIR62DT CIIR81DT CMIR22DT	https://dhsprogram.com/data/dataset_admin/login_main.cfm;jsessionid=38AA921B4F92FB1E55E6E25BE78AAE49.cfusion?CFID=207585736&CF_TOKEN=72b4afa0fd47e4b1-42B4DA51-FB91-ADA0-1AD618FBF4871629	February 2023	The data is accessible by creating an account in the provided link and placing a request. (when requesting, use the list of datasets provided under column 2 as filter)	
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	CMIR31DT CMIR44DT CMIR61DT CMIR71DT ETIR41DT ETIR51DT ETIR61DT ETIR71DT ETIR81DT GAIR41DT GAIR61DT GAIR71DT GNIR41DT GNIR52DT GNIR62DT GNIR71DT KEIR03DT KEIR3ADT KEIR8CDT KEIR33DT KEIR42DT KEIR52DT KEIR72DT MLIR01DT MLIR6ADT MLIR7ADT MLIR32DT MLIR41DT MLIR53DT MWIR4EDT MWIR7ADT				
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	MWIR22DT MWIR41DT MWIR61DT NGIR4BDT NGIR6ADT NGIR7BDT NGIR21DT NGIR53DT NMIR21DT NMIR41DT NMIR51DT NMIR61DT SNIR02DT SNIR4ADT SNIR6DDT SNIR7ADT SNIR7IDT SNIR7ZDT SNIR8BDT SNIR8RDT SNIR21DT SNIR32DT SNIR61DT SNIR71DT SNIR81DT				
Africa boundary	\data\DHS_SSA \AFRICA	https://hub.arcgis.com/datasets/geoduck::africa-boundaries/about	February 2023		
Climate Hazards Group InfraRed					See “Constructi on of Geospatial

Precipitation with Station data (CHIRPS)					Variables Using ArcGIS and Stata
FAO Global Agro-Ecological Zones (FAO-GAEZ) dataset					See “Construction of Geospatial Variables Using ArcGIS and Stata”
Armed Conflict Location & Event Data Project (ACLED)					See “Construction of Geospatial Variables Using ArcGIS and Stata”
Temperature data					See “Construction of Geospatial Variables Using ArcGIS and Stata”

6. Description of Codes

S N	Name of dofile	Description
	dofile/Main.do	Calls and runs all the .do files needed for the cleaning and analysis of main results.
	dofile/DHS/ AG_DHS.do dofile/DHS/ BF_DHS.do dofile/DHS/ BN_DHS.do dofile/DHS/ CD_DHS.do dofile/DHS/ CM_DHS.do dofile/DHS/ CT_DHS.do dofile/DHS/ DRC_DHS.do dofile/DHS/ ET_DHS.do dofile/DHS/ GB_DHS.do dofile/DHS/ GN_DHS.do dofile/DHS/ KN_DHS.do dofile/DHS/ ML_DHS.do dofile/DHS/ MW_DHS.do dofile/DHS/ NB_DHS.do dofile/DHS/ NG_DHS.do dofile/DHS/ SG_DHS.do dofile/DHS/ TG_DHS.do dofile/DHS/ TZ_DHS.do	These dofiles create the indicators from the DHS raw data for each country and will save the clean data in the folder named 'created' for each country and at the same time save the appended data for each country in the folder named 'DHS_appended', within the folder named 'created'.
	\\DHS_Spatial_Data\ Construction of Geospatial Variables	generates all the geo spatial datasets (rainfall, temperature, suitability and conflict)
	dofile/ Appending.do	appends across each country's appended datasets and yields the main dataset (named 'woringdata') used for the final analysis.
	dofile/ Analysis_unwanted_motherhood'.do	is used for the final analysis and saves the results in a folder named 'Results'.
	replicate_mechanisms/dofile/Main_Mechanisms.do	Calls and runs all the .do files needed for the cleaning and analysis of mechanisms.
	replicate_mechanisms/dofile/DHS/ AG_DHS.do	These dofiles are used to clean the DHS data separately for each country and

	replicate_mechanisms/dofile/DHS/ BF_DHS.do replicate_mechanisms/dofile/DHS/ BN_DHS.do replicate_mechanisms/dofile/DHS/ CD_DHS.do replicate_mechanisms/dofile/DHS/ CM_DHS.do replicate_mechanisms/dofile/DHS/ CT_DHS.do replicate_mechanisms/dofile/DHS/ DRC_DHS.do replicate_mechanisms/dofile/DHS/ ET_DHS.do replicate_mechanisms/dofile/DHS/ GB_DHS.do replicate_mechanisms/dofile/DHS/ GN_DHS.do replicate_mechanisms/dofile/DHS/ KN_DHS.do replicate_mechanisms/dofile/DHS/ ML_DHS.do replicate_mechanisms/dofile/DHS/ MW_DHS.do replicate_mechanisms/dofile/DHS/ NB_DHS.do replicate_mechanisms/dofile/DHS/ NG_DHS.do replicate_mechanisms/dofile/DHS/ SG_DHS.do replicate_mechanisms/dofile/DHS/ TG_DHS.do replicate_mechanisms/dofile/DHS/ TZ_DHS.do	stores the cleaned datasets under the folder replicate_mechanisms/data/created/DHS _appended.
	replicate_mechanisms/dofile/Analysis/ mechanism_analysis.do	is used to append the country level cleaned data and is also used for the final analysis of mechanisms and saves the results in a folder named 'mechanisms /results'

Construction of Geospatial Variables Using ArcGIS and Stata

Weather Shocks and Unintended Fertility in Sub-Saharan Africa

DATA SOURCES

1. Rainfall Data

Rainfall data were obtained from the Climate Hazards Center Climate Hazards Group InfraRed Precipitation with Stations (CHIRPS) database: <https://www.chc.ucsb.edu/data/chirps>.

Dataset details:

- ✓ **Dataset name:** Climate Hazards Group InfraRed Precipitation with Stations (CHIRPS)
- ✓ **Version:** v2.0
- ✓ **Temporal coverage used:** 1981 to 2023
- ✓ **Temporal resolution:** Monthly
- ✓ **Spatial resolution:** 0.05° (~5 km)
- ✓ **Spatial coverage:** Africa
- ✓ **Data directory used:** /products/CHIRPS-2.0/africa_monthly/
- ✓ **File format:** GeoTIFF (.tif)
- ✓ **Access date:** February 2023

Citation: Funk, C., P. Peterson, M. Landsfeld, D. Pedreros, J. Verdin, S. Shukla, G. Husak, et al. (2015). The climate hazards infrared precipitation with stations: A new environmental record for monitoring extremes. *Scientific Data*, 2, 150066.

2. Agricultural Suitability Data

Agricultural suitability indices were obtained from the Food and Agriculture Organization of the United Nations Global Agro Ecological Zones (GAEZ) Data Portal: <https://gaez.fao.org/> The suitability indices are based on rainfed production systems, minimal input conditions, and long run climate averages for 1971 to 2000, reducing potential endogeneity concerns.

Dataset details

- ✓ **Dataset name:** Global Agro Ecological Zones (GAEZ)
- ✓ **Version:** v4
- ✓ **Publisher:** Food and Agriculture Organization of the United Nations
- ✓ **Thematic module:** Theme 4 – Suitability and Attainable Yield
- ✓ **Layer used:** Crop Suitability Index in Classes – All Land in Grid Cell

- ✓ **Access method:** Raw GeoTIFF rasters downloaded via the GAEZ Data Viewer (<https://gaez-services.fao.org/apps/theme-4/>)
- ✓ **Spatial resolution:** 0.08333333° (~5 arc minutes)
- ✓ **Spatial reference system:** WGS84 (EPSG:4326)
- ✓ **Spatial coverage:** Global
- ✓ **Pixel type:** Signed 16 bit integer (S16)
- ✓ **Band count:** 1
- ✓ **Access date:** February 2023
- ✓ **Crops included:** Maize (sxlr0_mze), Rice (sxlr0_rcd), Wheat (sxlr0_whe), Sorghum (sxlr0_srg), Pearl millet (sxlr0_pml), Cassava (sxlr0_csv), Yam (sxlr0_yam), Soybean (sxlr0_soy), Chickpea (sxlr0_chk), Coffee (sxlr0_cof), Cacao (sxlr0_coc), Oil palm (sxlr0_olp), White potato (sxlr0_wpo).
- ✓ **Filters and parameters**
 - Water supply condition: Rainfed
 - Climate scenario: Baseline
 - CO2 fertilization assumption: No fertilization
- ✓ **Citation:** Food and Agriculture Organization of the United Nations and International Institute for Applied Systems Analysis. 2022. Global Agro Ecological Zones (GAEZ v4): Suitability Index.

3. Temperature Data

Temperature data were obtained from the Climatic Research Unit at the University of East Anglia: <https://crudata.uea.ac.uk/cru/data/hrg/>. We use the Climatic Research Unit gridded Time Series dataset.

Dataset details

- ✓ **Dataset name:** Climatic Research Unit gridded Time Series version 4.08 (CRU TS v4.08)
- ✓ **Version:** 4.08
- ✓ **Variable used:** Monthly mean temperature (tmp)
- ✓ **Temporal resolution:** Monthly
- ✓ **Temporal coverage used:** 1981 to 2023
- ✓ **Spatial resolution:** 0.5° × 0.5°

- ✓ **Spatial coverage:** Global land areas
- ✓ **File format:** NetCDF (.nc)
- ✓ **Access date:** February 2023
- ✓ **Exact files downloaded**
 - cru_ts4.08.1981.1990.tmp.dat.nc
 - cru_ts4.08.1991.2000.tmp.dat.nc
 - cru_ts4.08.2001.2010.tmp.dat.nc
 - cru_ts4.08.2011.2020.tmp.dat.nc
 - cru_ts4.08.2021.2023.tmp.dat.nc
- ✓ **Citation:** Harris, I., Osborn, T. J., Jones, P., & Lister, D. (2020). Version 4 of the CRU TS monthly high-resolution gridded multivariate climate dataset. *Scientific data*, 7(1), 109.

4. Conflict Data

Conflict event data were obtained from the Armed Conflict Location & Event Data Project (ACLED): <https://acleddata.com/>

Dataset details

- ✓ **Dataset name:** Armed Conflict Location & Event Data Project (ACLED)
- ✓ **Provider:** Armed Conflict Location & Event Data Project
- ✓ **Data format:** CSV
- ✓ **Access date:** January 2023
- ✓ **Temporal coverage used:** 1 January 1999 to 31 December 2023
- ✓ **Geographic coverage:** Africa
- ✓ **Filters and parameters**
 - Date range: 1999-01-01 to 2023-12-31
 - Regions selected: Eastern, Middle, Northern, Southern, and Western Africa
 - Actor filters: None
 - Event types: All
- ✓ **Citation:** Armed Conflict Location & Event Data Project (ACLED). 2023. ACLED Dataset. Accessed January 2023. Available at <https://acleddata.com/>

1.5 Africa Shapefile

This shapefile was used to produce **Figure 1**, which displays the geographic boundaries of countries in Africa.

The file was downloaded from the following source:

<https://hub.arcgis.com/datasets/geoduck::africa-boundaries/explore?location=4.971007%2C41.248820%2C3>

The dataset provides polygon boundaries for African countries and is used as the base map for plotting the DHS coordinates.

DATA PREPARATION

Required software

- ArcGIS (ArcMap)
- NetCDF to CSV Converter Download and install from:
<https://www.jem.govToolsCSVConverter>

Step 1. Download the datasets

- Rainfall data (CHIRPS) <https://www.chc.ucsb.edu/data/chirps> Accessed February 2023.
We use the full monthly dataset covering the period from 1981 through the end of the study period. Files are named using the convention *chirps-v2.0.YYYY.MM.tif*, where `YYYY` denotes the year and `MM` the month, for example *chirps-v2.0.2000.01.tif* for January 2000.
- Agricultural suitability data (FAO-GAEZ) <https://gaez.fao.org/> Accessed February 2023
 - The analysis uses FAO-GAEZ agricultural suitability indices for 13 major crops. The crops and their corresponding FAO-GAEZ files are maize (sxlr0_mze), rice (sxlr0_rcd), wheat (sxlr0_whe), sorghum (sxlr0_srg), pearl millet (sxlr0_pml), cassava (sxlr0_csv), yam (sxlr0_yam), soybean (sxlr0_soy), chickpea (sxlr0_chk), coffee (sxlr0_cof), cacao (sxlr0_coc), oil palm (sxlr0_olp), and white potato (sxlr0_wpo). All suitability indices are provided at the grid-cell level and are used as time-invariant measures in the analysis.
 - Crop selection follows FAO documentation and related sources.
 - Suitability indices we used are based on rainfed production systems, minimal input conditions, and long-run climate averages (1971–2000), minimizing endogeneity concerns.

- Temperature data (CRU TS 4) <https://crudata.uea.ac.uk/cru/data/hrg/> Accessed February 2023
 - CRU TS 4 provides monthly temperature data in NetCDF format at the decadal level.
- Conflict data (ACLED) <https://acleddata.com/> Accessed January 2023

Step 2. Create and add folders to the Catalog window

Create the directory structure below and store each dataset in its corresponding subfolder.

- Main directory
 - GIS DHS_Spatial_Data
- Subfolders
 - GIS DHS_Spatial_Data/DHS_coordinates: Contains DHS location data for each country in point shapefile format. These data are restricted and are not included with the replication files. They must be requested directly from the DHS Program.
 - GIS DHS_Spatial_Data/Rainfall: Stores CHIRPS monthly rainfall data in GeoTIFF format.
 - GIS DHS_Spatial_Data/Temperature: Stores CRU TS 4 temperature data in NetCDF format.
 - GIS DHS_Spatial_Data/Conflict: Stores ACLED conflict event data in CSV format.
 - GIS DHS_Spatial_Data/FAO_GAEZ: Stores FAO-GAEZ agricultural suitability data in GeoTIFF format.
 - GIS DHS_Spatial_Data/Output: Stores outputs generated during the spatial analysis.
- Adding the folders in ArcMap
 1. Open the Catalog window.
 2. Right-click Folder Connections.
 3. Select *Connect To Folder* and browse to *GIS DHS_Spatial_Data*.
 4. Add the folder and expand it to access all subfolders.

Step 3. Import and merge DHS location shapefiles (ArcMap)

- Merge DHS shapefiles into a single file
 1. Open *ArcToolbox*.

2. Navigate to *Data Management Tools* → *General* → *Merge*.
3. Under Input Datasets, select all DHS country shapefiles from: *GIS DHS_Spatial_Data/DHS_coordinates*.
4. Set the Output Dataset to and file name *GIS DHS_Spatial_Data/Output/DHS_locations_merged.shp*.
5. Click OK to run the Merge tool.
6. Export merged DHS location data in csv format
 - Open the attribute table of *DHS_locations_merged.shp*.
 - Click Table Options → Export.
 - Select All records.
 - Choose Text File as the output format and name the file *All_DHS_coordinates.csv*.
 - Save the file in the GIS DHS_Spatial_Data/Output folder.

Extracting rainfall and suitability values for each EA using ArcGIS

Monthly rainfall and agricultural suitability indices are provided in GeoTIFF format. Values are extracted at DHS enumeration area locations using bilinear interpolation.

Rainfall extraction procedure

1. Add the CHIRPS monthly rainfall raster files from GIS DHS_Spatial_Data/Rainfall.
2. Load the merged DHS location shapefile *DHS_locations_merged.shp*.
3. Open ArcToolbox and navigate to Spatial Analyst Tools → Extraction → Sample.
4. Set the parameters as follows:
 - Input rasters: CHIRPS monthly rainfall rasters
 - Input location features: *DHS_locations_merged.shp*
 - Resampling technique: Bilinear
 - Unique ID field: EA identifier
 - Set the environment settings as follows:

Processing extent: Africa shapefile
Raster analysis: Mask: Africa shapefile

5. Run the tool.
6. Export the output table to CSV and save it in GIS DHS_Spatial_Data/Output:

Table Options → Export → All records → Text File (Africa_Rainfall.csv).

Agricultural suitability extraction procedure

1. Add the FAO-GAEZ raster files from: GIS DHS_Spatial_Data/FAO_GAEZ.
2. Use the same Sample tool and parameter settings as described for rainfall extraction.
3. Save the output table in GIS DHS_Spatial_Data/Output.
4. Export the table to CSV: Table Options → Export → All records → Text File (suitability.csv).

Section 3. Converting temperature data from NetCDF to CSV

Monthly temperature data are obtained from CRU TS 4 and are provided in NetCDF format.

Conversion to CSV is performed using the NetCDF to CSV Converter available at:

<https://www.jem.gov/Tools/CSVConverter>

Procedure

1. Set the input directory containing the CRU TS NetCDF files.
2. Specify the output directory for the converted files.
3. Select the temperature variable tmp.
4. Export each NetCDF file to CSV for use in Stata.

Output CSV filenames are kept unchanged, for example cru_ts4.08.1991.2000.tmp.dat_tmp.csv, to preserve traceability.

Figure 1 in ArcGIS

Open ArcGIS

1. Import the required data

Go to File → Add Data → Add Data.

Import the following files:

- **wantedness.csv**

Located in: Replication_unintended → data.

- **Africa_Boundaries (shapefile)**

Located in: DHS_Spatial_data → Africa_Boundaries-shp.

2. Adjust the Africa shapefile appearance. In the Table of Contents, click the symbol displayed under the `Africa\_Boundaries` layer. In the symbol selector, choose Hollow so that the polygon has no fill and only an outline.

3. Display the DHS coordinate points. In the Table of Contents, right-click `wantedness.csv`. Select Display XY Data. Set the coordinate fields:

X Field: `Longnum`

Y Field: `Latnum`

Click OK to create the point layer.

4. Add a legend to the map

From the top menu, select View → Layout View.

Go to Insert → Legend.

Click Next, then OK to add the legend to the layout.

The remaining tasks are performed in Stata by following the do-file saved as *Construction of Geospatial Variables.do*.

ANNEX: how to download the DHS datasets

18/02/2026, 10:04

The DHS Program - Datasets Account Home

Q SEARCH | LOGIN | ភ្នំពេញ

Search The DHS Program

COUNTRIES

- Countries
- Countries List
- Interactive Map

DATA

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- Using Datasets for Analysis
- Guide to DHS Statistics
- Download Datasets
- IPUMS-DHS
- DHS User Forum
- STATcompiler
- Mobile App
- DHS API
- Visualizations

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- Search
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METHODOLOGY

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- Survey Characteristics Search
- Questionnaires and Manuals
- Tabulation Plan for DHS Final Reports
- Tabulation Plan for Key Indicators Reports
- Survey Process
- Survey Questions Database
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- Dissemination
- Capacity Strengthening

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TOPICS

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- Childhood
- Mortality
- COVID-19
- Family Planning
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- Maternal
- Mortality
- Nutrition
- SDGs
- Wealth Index
- More topics

[The DHS Program](#) > [Data](#) > Datasets Account Home

Datasets

My Dataset Account

Logged In: musahasen@gmail.com

Download Datasets Using a Download Manager

Project: Rainfall shock and Utilization of Maternal Healthcare in SSA

Click link below to view list of URLs or right click to download. Copy and paste or import the list into your download manager. There are various download managers available for all the major browsers. See [DHS Userforum](#) for more information.

Text file with URLs (156 files)

Select countries, file data types and file format then click "Build URL File List" button.

Country	File Data Type *	File Format *
☒ Check/Uncheck All	☒ Check/Uncheck All (DHS)	☐ Hierarchical
☒ Angola	DHS	☐ Flat file
☒ Benin	☒ Births Recode	☒ Stata System file
☒ Burkina Faso	☐ Children's Recode	☐ SAS System file
☐ Burundi	☐ Couples' Recode	☐ SPSS System file
☒ Cameroon	☐ Height and Weight Scores - WHO Child Growth Standards	Surveys
☐ Central African Republic	☐ Household Member Recode	☒ All
☒ Chad	☐ Household Raw	☐ All DHS
☐ Comoros	☐ Household Recode	☐ All SPA
☒ Congo Democratic Republic	☐ Individual Raw	☐ All AIS
☒ Cote d'Ivoire	☐ Individual Recode	☐ All MIS
☐ Eswatini	☐ Men's Raw	☐ Most Recent
☒ Ethiopia	☐ Men's Recode	☐ Most Recent DHS

https://dhsprogram.com/data/dataset_admin/index.cfm

1/3

18/02/2026, 10:04

The DHS Program - Datasets Account Home

☒ Gabon	☐ Other Data	☐ Most Recent SPA
☐ Gambia	☐ Service Availability Raw	☐ Most Recent AIS
☐ Ghana	☐ Verbal Autopsy	☐ Most Recent MIS
☒ Guinea	☐ Village Recode	
☒ Kenya	☐ Wealth Index	Build URL File List
☐ Lesotho	GPS	Cancel
☐ Liberia	☒ Geographic Data	
☐ Madagascar		
☒ Malawi		
☒ Mali		
☐ Mozambique		
☒ Namibia		
☐ Niger		
☒ Nigeria		
☐ Rwanda		
☒ Senegal		
☐ Sierra Leone		
☐ South Africa		
☒ Tanzania		
☒ Togo		
☐ Zambia		

* File Data Types not listed above, can be downloaded from the original survey-by-survey download system.
Also, some File Data Types are survey specific, and will not exist for surveys where that Data Type was not collected.
* File Format: Hierarchical File Format does not apply to SPA surveys.

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