West Africa Coastal Vulnerability Mapping:
Demographic and Health Survey Data Sets, Household Wealth

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DESCRIPTION

This data set was used as an indicator in the analysis presented in the report, "Mapping the Exposure of Socioeconomic and Natural Systems of West Africa to Coastal Climate Stressors" (de Sherbinin et al., 2014; de Sherbinin et al., 2015). The table below provides information about the indicator as it was used in the analysis, including a description of the input data (where relevant) and of the processing completed to produce the indicator.

Title:	Household Wealth
Indicator Codes:	HHWL
Component:	Adaptive Capacity
Rationale:	High levels of household wealth are assumed to contribute to greater resilience, while low levels of household wealth are assumed to lead to greater sensitivity to climate shocks, with a greater likelihood that households will need to sell assets or migrate during periods of prolonged stress.

Data Set:	Please note, the Household Wealth index is not comparable across countries. The DHS wealth index is a composite measure of a household's cumulative living standard included in the Demographic and Health Survey (DHS)'s household level survey data (ICF International, 1998-2013). The wealth index[1] variable (HV270 from the household survey) was calculated using several variables included in the survey: households' ownership of assets such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities (Measure DHS, 2008, 2012, 2013). These variables were reduced to an index by using a statistical procedure known as principal components analysis (PCA). The resulting wealth index places all households on a continuous scale of relative wealth, and DHS separates them into five wealth groups: Poorest, Poorer, Middle, Richer, and Richest. The variable used in our analysis, household wealth (HHWL), is a cluster level aggregation of the household variable, where a cluster represents 100 households on average. The method of aggregation is weighted mean, calculated based on DHS documentation (HV005/1000000)[2]. The cluster level household wealth index was matched to the spatially georeferenced cluster points provided with the data. The cluster level household wealth index in point data format was used to create *prediction* surfaces at 30 arc-second resolution (~1 km) with ArcGIS Empirical Bayesian Kriging tool. The rasters were subset to the national boundary extents using ArcGIS Extract by Mask tool and a 30 arc-second raster mask generated from a 30 arc-second fishnet. Raster values were extracted using ArcGIS Extract Values to Points tool and the 30 arc-second fishnet centroids. The outputs were exported to .csv tables for re-coding and statistical analysis. [1] A DHS Program Data Alert received on April 19, 2017 announced that an error was found in the calculation of the wealth index in the Cote d'Ivoire 2011-12, Standard DHS, and that corrections have been made to version 61 of the household, women's and men's recode files. Due to time considerations, the Cote d'Ivoire data provided here have not been reprocessed with the corrected wealth index variable. [2] The recode file describes the HV005 variable as follows: Sample weight is an 8 digit variable with 6 implied decimal places. To use the sample, weight divide it by 1,000,000 before applying the weighting factor. All sample weights are normalized such that the weighted number of cases is identical to the unweighted number of cases when using the full data set with no selection. This variable should be used to weight all tabulations produced using the data file. For self-weighting samples this variable is equal to 1,000,000.

	DHS Program website: http://www.dhsprogram.com. Input data source citation: ICF International. 1998-2013. Demographic and Health Surveys (various) [Datasets]. Calverton, Maryland: ICF International [Distributor], 2013.
Units:	Index of 1-5, with 5 being Richest (Poorest, Poorer, Middle, Richer, and Richest)
Limitations:	For limitations, see the DHS Data Quality and Use page, available at: http://dhsprogram.com/data/Data-Quality-and-Use.cfm.
Spatial Extent:	The rasters are available for nine of the ten Guinea Current countries of coastal West Africa: Guinea, Sierra Leone, Liberia, Cote d'Ivoire, Ghana, Togo, Benin, Nigeria, Cameroon. Data for Guinea-Bissau were unavailable.
Spatial Resolution:	The spatial resolution of the areas represented by each cluster point varies depending on the density of cluster points. The resolution of the prediction rasters is 30 arc-second (~1 km).
Time Period:	1998-2013: Benin (2012), Cameroon (2011), Cote d'Ivoire (2012), Ghana (2008), Guinea (2012), Liberia (2011), Nigeria (2013), Sierra Leone (2008), Togo (1998)
Additional Notes:	Regarding the general use of cluster data from the DHS, geographic information is collected in the DHS and AIDS Indicator Survey (AIS) surveys. All survey data are presented both nationally and by sub-national reporting areas. These reporting areas are often, but not always, provinces or groups of provinces; they are included in all recoded data sets. But one can obtain higher levels of spatial precision by using the cluster data. The cluster data set has one record for every cluster in which the survey was conducted. This type of file includes the latitude and longitude of the center of the sample cluster. Further information can be found at: http://dhsprogram.com/data/File-Formats.cfm#CP_JUMP_8037.

ACCESSING THE DATA

SEDAC URL: http://sedac.ciesin.columbia.edu/data/collection/wacvm.

Permanent URL: https://doi.org/10.7927/H45T3HFZ.

The data are available as compressed zipfiles of GeoTIFFs or shapefiles. Downloaded files need to be uncompressed in a single folder using either WinZip (Windows file compression

utility) or similar application before they can be accessed by your GIS software package. Users should expect an increase in the size of downloaded data after decompression.

The data are stored in geographic coordinates of decimal degrees based on the World Geodetic System spheroid of 1984 (WGS84).

DISCLAIMER

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USE CONSTRAINTS

RECOMMENDED CITATION(S)

Data set:

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