West Africa Coastal Vulnerability Mapping:
Demographic and Health Survey Data Sets, Maternal Education Level

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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:	Maternal Education Levels
Indicator Codes:	MEDUC
Component:	Adaptive Capacity
Rationale:	Education can directly influence risk perception, skills and knowledge and indirectly reduce poverty, improve health and promote access to information and resources. When facing natural hazards or climate risks, educated individuals, households and societies are assumed to be more empowered and more adaptive in their response to, preparation for, and recovery from disasters (Muttarak and Lutz 2014). According to the DHS website, education is a key

	background indicator in the DHS that helps contextualize a country's health and development situation. There is a strong association between a mother's education and improved health, higher levels of knowledge, and increased levels of empowerment of women.
Data Set:	Maternal Education Level is a measure of mother's highest level of education attended, calculated based on the Demographic and Health Survey (DHS)'s individual recode survey data (ICF International, 1998-2013). The education measure included in the survey (V106) is a standardized variable providing level of education for all individuals interviewed in the following categories: No education, Primary, Secondary, and Higher (Measure DHS, 2008, 2012, 2013). We extracted the mothers from the sample by selecting the positive values for variable V201, which asks for "Total number of children ever born". The variable used in our analysis, mother's education (MEDUC), is a cluster level aggregation of the DHS individual variable, where a cluster represents 100 households on average. The method of aggregation is weighted mean, calculated based on DHS documentation (V005/1000000)[1]. The cluster level maternal education level was matched to the spatially georeferenced cluster points provided with the data. Each cluster point value represents the weighted average highest education level attained by the women in that cluster. The cluster level maternal education level in point data format was used to create *prediction* surfaces at 30 arc-second (~1 km) using 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] The recode file describes the V005 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 dataset 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:	Years of formal education
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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