Final Project Proposal

TOPIC

INDIA: Water vs. Economic Development = Political Instability?

India has been heavily in the news of late due to a significant water crisis unfolding in multiple states across the country. This map will look at the intersection of economic development, water scarcity, and the possible political repercussions. The two linked questions it seeks to illuminate are "is the scarcity of a critical resource (water) a predictor of political unrest/violence?" and "how closely is the water scarcity linked to economic development?" The first question would give us a sense of the risks at stake here at a political level, and the second would help us understand to what extent local human development is culpable for the situation as compared to natural drought.

OBJECTIVES

This map seeks to provide a means of comparative analysis for the drivers, stressors, and potential consequences of water scarcity in rapidly developing India. For me, this map has two fold objectives: to become familiarized with the ACLED dataset, and to work to understand the usefulness (or lack thereof) in layering disparate datasets to observe correlation, and discern when data can be used predictively. For example, is there a point at which water scarcity breeds political unrest? There is some similar work using the ACLED Africa dataset conducted by the Strauss Center at UT Austin in the Climate Change and African Political Stability project which formed some of the inspiration for this idea, but they don't work on India.

A user of this map could be a government decision maker seeking to both easily understand the current water situation at a macro and micro level, see up to date conflict events, and seek to address both the immediate response needs and the underlying causes. This user would have well of moderate skill level in dealing with and understanding different datasets, and the focus is on providing that data in a simple, ergonomic, and elegant structure that will help to highlight moments or places where the data converges into correlation (though of course possibly not causation).

One scenario this user might encounter would be he receives a report of a violent protest in a certain district, of residents frustrated with the lack of adequate water. The user would want to be able to navigate easily to that area, and check what other similar conflicts have occurred there in the past. He would also want to see how those conflicts correlate with the water levels at the time of the events, to possibly extrapolate how serious and sustained the current conflict might be. He would also want to see the recent economic growth in that area, both to understand new potential for water stress and the needs of the population.

At a higher level, the government leadership rolling this out to their staff wants the tool to communicate urgency, and accurately demonstrate the seriousness of the water scarcity issue even when compared to past drought. From a design perspective, it should communicate urgency, not just act as a neutral tool of analysis.

CONTENT REQUIREMENTS:

1. Political event data is shown as points.
2. Water data is shown as choropleth map categorized by Overall Water Risk.
3. Info panel shows historical and cumulative political event data for mouseover of a state.
4. Basemap orients data readily but subtly.
5. Economic growth data is available to user.

FUNCTIONAL REQUIREMENTS:

1. Tiles loaded and drawn to map etc.
2. Data will be loaded from CartoDB.
3. 2 layers: Overall Water Risk and Event point data will be drawn to map.
4. Additional economic growth info will be attached to each point and available on click or hover.
5. Normal user controlled zoom is supplemented when user searches town or location of an ACLED event, zooms to location.
6. Hover provides current data info, info box with historical data for that State,
7. A ui-slider allows the user to scroll through the events in the ACLED, in unites of months.
8. Select box allows user to choose type of conflict event.

DATA SOURCES:

India subsection of the ACLED Asia Dataset: http://www.acleddata.com/asia-data/

India water Dataset: downloaded from the Water Resources Institute datasets:
http://www.wri.org/resources/data-sets/aqueduct-global-maps-21-data

This global dataset has been "lightened" by stripping away all countries except for India.

Access: Both datasets have been loaded into CartoDB, and will be accessed from there.

GDP growth and absolute data is available by state on Wikipedia:
https://en.wikipedia.org/wiki/List_of_Indian_states_by_GDP

STACK

I'm using QGIS to help process shapefiles, strip out non-India data, and upload to CartDB. Editing of course will be done on brackets.

ACLED event data is in a csv file, as is basic econ data by state.

Water data was pulled in shapefile from World Resources Institute, and uploaded to CartoDB via the QGIS plugin.

I'd like to use CARTODB.JS to interface with the data stored on my Carto account, and link it to a sheet that can be easily updated, altering the map. I'm not there yet as far as familiarity with the cartodb.js library, and look forward to getting more fluent there. I also plan to use JQuery and Leaflet.js, and possibly some d3 for a light baselayer built from the water data.

Web technologies will be html, css, javascript.

Initial project will be hosted on GitHub pages. I also use Squarespace to host a website, and am curious as to the limits of that platform, which I've only used for basics. I'd like to see how far I can push the limits there to host or embed this map there. It is easy to embed CartoDB maps, but I haven't explored if/how there are more complex and controlled ways to host custom coded maps.

THEMATIC REPRESENTATION:

The water data will format default basemap, colored by Overall Water Risk category. Event data will be points, defaulting to show only water related events but will the option to show other types of events if requested.

Map would open to show all water related events for the year, with slider defaulting to the most recent time. The user could then scroll back through time (by month) and the data would only display for that month. If possible (though this isn't something we've covered) I'd like to be able to have a range slider, so the user can choose a timeframe, not just one month or year to date.

Search functionality would be designed to simply search within the ACLED database BY STATE to easily narrow down content of interest to the search. A search, when triggered, will zoom in on the state in question.

Below is a mockup of the map created in cartoDB (perk of hosting data there is easy use of built in tools for prototyping) of how the map will look when opened. Link is available here (though likely constantly changing as I test ideas: https://nilslewis.cartodb.com/viz/ebc0363a-27d8-11e6-b3bc-0e674067d321/public_map