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# Design Considerations for a Visualization and Simulation Tool for CBMS Data

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**Abstract:** A visualization and simulation tool for a community-based dataset from Angelo King Institute (AKI) called Community-Based Monitoring System (CBMS) is designed. Currently, there is no local visualization and simulation tool for CBMS data. The data in the CBMS dataset is mainly categorized into eight indicators considered to be the basic needs of a local government unit. These are health, nutrition, housing, water and sanitation, education, income, employment, and peace and order. This research is useful for government officials, and local communities in creating or formulating policies. This tool is developed to give policymakers and program implementors necessary information to study the effect of macroeconomic reforms and different kinds of policy shocks. The application is designed to be web-based. It allows users to extract data from the CBMS dataset, to visualize the data with the use of maps (over Google Maps) and charts to provide a more accessible summary of the conditions inside a community, and simulate the effects on the data given parameters that can be adjusted to have a view of what might be the outcome of a given scenario for both economical researcher and non-economical researcher to give them a better view of data. Through the results based on economic computations performed on the data, this can help the government units in deciding what policies to implement in a certain community. By implementing agile development methodology, initial design and prototype of the application has been done. The prototype allows users to select fields and ranges of values to visualize and simulate. Careful design and presentation of information is necessary so that it is easy to comprehend. A menu of simulation parameters will be built into the software. These parameters will be curated based on the most recent and relevant to the data available, and may be updated.

**Key Words:** visualization, simulation, big data, statistics, economics