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SYSTEMS ARCHITECTURE AS A TOOL FOR DEVELOPING DECISION SUPPORT SYSTEMS: ANGOLAN DROUGHT

Abstract

This project seeks to develop a Drought Decision Support System to inform the response to drought and floods in southern Angola. Angola experiences periodic drought, particularly in the southern part of the country in the Cunene province. This periodic drought can be severe and has a great impact on the country's ability to provide services and infrastructure to its citizens, as well as on Angola's economic impacts. The Drought Decision Support System seeks to improve the use of satellite-based Earth Observation data, the social vulnerability index, and systems architecture analysis in order to support the government of Angola's decisions for drought intervention, planning, aid, and mitigation. Specifically, the government of Angola needs to make decisions to evaluate the effectiveness of three categories of interventions to determine if these interventions are delivered to the regions in which residents face high vulnerability based on their sensitivity, exposure and adaptive capacity to drought hazards. The three interventions include: 1) Emergency food and water storage and transport; 2) Providing funding, equipment and personnel to improve boreholes; and 3) Investing in long term infrastructure improvements in the Cunene River to allow catching and pumping of water during rainy periods. In addition, the Angola Drought Decision Support System contributes to a capability for the Government of Angola to organize information about the various entities that provide drought relief (included national government, regional government and non-profit entities such as UNICEF) and determine whether the combination of drought response efforts is delivered collectively to the regions with high vulnerability. The Drought Decision Support System will ultimately combine geospatial data and analysis with social science data and analysis to support a decision-making framework for the short- and long-term mitigation of the hazards of drought in southern Angola. This paper focuses particularly on the socioeconomic data collection, analysis, and modeling process using a systems architecture framework. In the early stage of this project, systems architecture is used to engage with stakeholders in the Drought Decision Support System to determine the kinds of objectives and requirements needed to develop a Drought Decision Support System for Angola. This paper discusses this overall project with particular focus on the preliminary systems architecture analysis and stakeholder engagement as a tool to develop decision support systems.