

Assessment of Climate Change on the Arkansas River Basin

Fariborz Nasr Azadani¹, and Darrell G Fontane²

Department of Civil and Environmental Engineering, Colorado State University

Abstract. Understanding the impacts of climate change on water resources is vital. Changes in the pattern of precipitation (distribution and amount) will impact the operation of existing water resources infrastructure. This paper describes a modeling approach to assess the impacts of climate change in the Arkansas River basin in Colorado. The Arkansas River is one of the major rivers in Colorado that provides water for 650,000 people a year and irrigates around 280,600 acres of agriculture areas. The WEAP (Water Evaluation and Planning) model is being applied to explore the potential vulnerability of agriculture, municipal and industrial water demands to climate change, specifically to changes in precipitation. The climate change software, MAGICC/ScenGen, is being used to develop potential future precipitation patterns, using the HADCM3, MRI-2.3.2 and ECHO-G models for the A2 and B2 greenhouse gas scenarios. Preliminary analysis of the results of this modeling effort show that the agriculture sector is more negatively impacted as compared to the impacts on the municipal and industry sectors.

¹ fariborz@engr.colostate.edu

² darrell.fontane@colostate.edu