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CLIMATE RISK ASSESSMENT FOR THE UPPER RIO GRANDE BASIN

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ABSTRACT: The West Wide Climate Risk Assessments are components of the WaterSMART Basin Study program, which was authorized under the Secure Water Act. Under this program, the risks of climate change to water supplies and demands, including, changes in snowpack, in timing and quantity of runoff, in groundwater recharge and discharge as well as in demands and consumptive usage, are being quantitatively evaluated across eight major Reclamation river basins. The results of these baseline analyses of projected climate change impacts are then leveraged for the development of partnerships with state and local water management entities to address specific impacts to water supplies and to develop adaptation and mitigation strategies. A basin-scale climate risk assessment is underway for the Upper Rio Grande basin, defined as the Rio Grande Basin from its headwaters in Colorado to Caballo Reservoir in south-central New Mexico. Component analyses of this Rio Grande risk assessment are being described in other presentations at this conference (see Roach, et. al., Gangopadhyay, et. al). Specific steps include: (a) Transformation of General Circulation Model (GCM) information into a local spatial and temporal scale (b) Utilization of the spatially and temporally relevant climate information to project future changes in water supply and evapotranspirative demand that can be expected as a result of climate change alone. (c) Simulation of future water-management actions based on the information developed above. The results of these implementation activities will then be utilized to identify the potential impacts of climate change at specified time periods in the future, on water delivery, hydroelectric power generation, recreation, fish and wildlife habitat, endangered, threatened, or candidate species under the Endangered Species Act, water quality, ecological resiliency, and flood control. Basin studies that follow on from this work will allow partnership with local water-management agencies to develop strategies for adaptation to, or mitigation of, these changes.

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