



## Optimal reservoir dimensioning under climate change

H. Nassopoulos, P Dumas, and S Hallegatte

(nassopoulos@centre-cired.fr) CIRED (Centre International de Recherche sur l'Environnement et le Développement) Campus du Jardin Tropical 45 bis, av. de la Belle Gabrielle 94736 Nogent sur Marne CEDEX FRANCE tel +33 1 43 94 73 73, fax 73 70

Climate change will certainly affect water resources and hydraulic infrastructures seriously. The fragile equilibrium between supply and demand of water maybe threatened by an uncertain future climate. Hence, available water quantities will have to be reassessed, taking into account different climatic change scenarios. These projected changes in available resources should lead to a modification of the conception, dimensioning and operation of dams and reservoirs under future climate, the feasibility of whom will necessitate an evaluation based on different socioeconomic and environmental criteria. The criterion used in this study is the cost benefit analysis criterion, and the optimal storage capacity of a reservoir for each scenario of available resources under climate change is determined using a generic model. We consider typical situations (limited inflow, geomorphologic and cost constrained cases) and determine in each case, the optimal dam and reservoir dimensioning under climate change.

Keywords: Climate change, dams and reservoirs, dimensioning, cost benefit analysis.