

Selection of Optimum Small Hydropower Sites with the Application of Optimisation Techniques: The Case of the Gelana Basin in Ethiopia

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Decision on investment for hydropower development is made under a number of constraints which require due attention by decision makers. Since constraints are mostly interrelated, it is often difficult to deal with each one separately. Because of this, decisions have to be based on all available information. This requirement puts an additional constraint to decision makers in developing countries since they rarely find well-organised information. Often, they are confronted with the challenge of allocating very limited financial resources among competing hydropower development alternatives. It seems essential to look into scientific tools of resource allocation to overcome this challenge. This paper identifies possible strategies for easing the challenge in the decision making process with regard to the selection of optimum small hydropower sites. A case study is established based on local sites in the country in order to demonstrate the applied optimisation procedure.