SMALL HYDROPOWER PROJECTS: ENVIRONMENTAL AND HYDRO-GEOLOGICAL PERSPECTIVES

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Small hydropower projects are those that generate less than 10 MW of electricity using small run-of-the-river hydropower systems. They usually consist of water conveyance (headrace channel, forebay and penstock), powerhouse unit, tailrace and transmission line. It is considered as a renewable resource of energy. It does not contribute to global warming and does not contribute to acid rains etc. Therefore, there is no question of pollution or degradation of land, waterways or other water bodies. However, large-scale dam hydropower projects are often criticized for their impacts on environment, particularly on wildlife habitat, fish migration, and water flow and quality. It is usually assumed that small, run-of-the-river projects are free from many of the environmental problems associated with their large-scale counterparts because of the use of the natural flow of the river, and thus producing relatively little change in the stream channel and flow. This paper addresses the feasibility of small hydropower projects in Sri Lanka with respect to environmental issues, geological stability and hydrological feasibility using case studies. The results of the study revealed that environmental impacts of small hydropower projects are location sensitive and also case dependant. In most cases, proper planning and implementation of the project and relevant mitigatory measures can minimize significant impacts of projects. Problems related to implementation and monitoring of impacts and possible solutions are also discussed.