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THESIS

**A CRITICAL REVIEW OF EXISTING GUIDELINES
FOR ENVIRONMENTAL IMPACTS ASSESSMENT
AND MITIGATION MEASURES FOR FUTURE
HYDROPOWER PROJECTS IN PAKISTAN**



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ABSTRACT

Hydropower supplies nearly one-fifth of the world's electricity. Hydropower also represents energy independence for many countries. Hydropower as an energy supply also provides unique benefits to an electrical system. Economic, social and environment change is inherent to development. Recent thinking often relates renewable energy to electricity from either wind energy, solar energy or geothermal energy. Pakistan economically viable hydropower potential is about 40,000 MW.

Environmental Impacts Assessment (EIA) of hydropower projects is essential to make it compatible with altered environment and to minimize the environmental affects by taking proper mitigation measures and compensation. EIA of hydropower projects is very complex in nature.

In this research study, the Environmental Impacts Assessments (EIA) and mitigation measures for hydropower projects have been described by reviewing various hydropower projects that are based nationally and internationally. The study describes the various physical, biological and socio-economic environmental impacts of hydropower projects.

The main objective of this study was to critically review the existing guidelines for EIA of hydropower projects. In Pakistan as most of the projects are carried out with the financial assistance of World Bank, Asian Development Bank (ADB) and Japan Bank

of International Cooperation (JBIC), therefore, the existing EIA guidelines of these institutions have been reviewed.

It was concluded that from the study that all the reviewed EIA guidelines provide a general check list based on environmental parameters for hydropower projects but they do not provide the information in terms of the various stages of the project i.e. planning, designing, construction, operation, refurbishment and demolition or decommissioning.

EIA guidelines for hydropower projects based on various stages of the project has been suggested in this study. Also the mitigation measures have been recommended to minimize the negative effects of hydropower projects.