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Overview on the risk minimization project in Thorthormi glacial lake

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With the financial assistance from the UNFCCC, this project mainly focuses on the risk minimization for Glacial Lake Outburst Flood (GLOF) in Punakha Wangdi valley along Pho Chu river. The project was designed with a budget of approximately 127 to 130 million Ngultrum (equivalent to an Indian Rupee) with a co financing scheme from the Austrain Government and WWF Bhutan.

The overall objective of the project was to lower the lake water level in Thorthormi lake by 5 m which according the technical mitigation plan drawn up in collaboration with the Austrain experts was a safety level to prevent a catastrophic GLOF in the future. The whole project was formulated for four years period with four working seasons per year with atleast 300 workers in each working season. The team adopted a simple method of lowering the lake water level which basically is deepening and widening the natural existing outlet channel. No big machineries were used for fear of disturbing the surrounding unstable moraine walls separating the lakes.

The project was initiated in 2008 by carrying out an engineering and safety plan which was implemented in the first year after a technical consultation with the GEF technical team. The real excavation work on the channels started only in 2009. The progress for each year for the past two years (2009 and 2010) are given in the following section.

After two years of excavation work only about less than 50% target has been achieved. Considering the overall target of 5 m reduction in lake level and also considering the time frame of the project which is another one more years to complete 4 years of the project, the project team feels that the project should be extended by another working season to enable the team to achieve the overall target of 5 m. The less achievement in terms of target was mainly due to unavoidable circumstances encountered by the team in course of the project implementation.

Keywords: GLOF, hazard mitigation, electrical resistivity tomography, glacial ice, United Nations Development Programme, Bhutan