

Thosne Khola Impounding Reservoir



Government of Nepal
Ministry of Water Supply



Background

Impounding Reservoir Water Supply Projects are one of the major ways to cope with the increasing impacts of climate change and the Thosne Khola Impounding Reservoir represents this necessity. This project aims to bolster the current water supply in Kathmandu Valley, addressing the urgent requirement for improved water security, especially amidst the increasing challenges posed by climate change.



Sector

Water Supply



Location

Ward no. 3, Konjyosom Rural Municipality,
Lalitpur District, Bagmati Province



Land Type

Private-Public-Forest
mixed use land

Salient Feature

- Catchment area: 29 km²
- Annual mean flow of Thosne Khola: 1.19 cumecs
- Flow duration curve: 0.37 cumecs discharge at 90% exceedance
- Design flood for the Dam: 480.3 m³/sec at 10000-year return period
- Minimum required capacity of the impounding reservoir:
- 8.87 MCM with D/S hydropower project consideration
- 12.8 MCM without considering D/S hydropower project
- Height of the dam:
 - Option 1: 80 meters
 - Option 2: 92 meters
- Intake: Two number of 2m*2m rectangular intake (proposed)
- Length of the tunnel: 7 km
- Diameter of the tunnel: 2 meters

Rationale:

- Construction of a reservoir to use the abundant yearly rainfall of 3000 mm to fulfill the area's water needs
- Complements the Melamchi Water Supply project
- Supplements the KUKL supply at Nallu
- Serves broader population of Kathmandu Valley

Project Components



Dam



Intake



Tunnel

Project Outcomes



Enhanced water security
of Kathmandu valley



Water
storage



Flood
control

Financial Indicators

Estimated Project Cost

NPR 584.465 Billion
(\$ 4.4 Million)



Project IRR
13.76%



Pay-back
period
6.5 Years

Note: 1 USD = NPR 132.99 as of 2023

(Information is based on Feasibility Study report prepared in 2023)

Project Implementation Modality



Public Private Partnership
(PPP model)

Build, Own, Operate, Transfer
(BOOT)
or
Build, Transfer Operate
(BTO)

Project Implementation Timeline



Project ideation/
Concept Note



Desk
Study



Pre-feasibility
Study



2023

Feasibility
Study

Relevant Agencies

- Ministry of Water Supply
- Kathmandu Valley Water Supply Management Board
- Investment Board Nepal

About the Agency

The Ministry of Water Supply is the leading executive agency in the sector that formulates federal-level policy, carrying a vision of assuring safe and accessible water and sanitation services and hygiene. The ministry is committed to putting efforts to achieve many national and international goals and targets in water, sanitation, and hygiene, intended for the betterment of people's living standards. Among its key objectives is the implementation of national-level large water supply projects and inter-provincial water supply projects. By spearheading these initiatives, the ministry aims to address critical water supply challenges and improve the overall water infrastructure across the country, thereby contributing to the well-being and prosperity of its citizens.

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